

THE IRON AGE.

THURSDAY, MARCH 8, 1900.

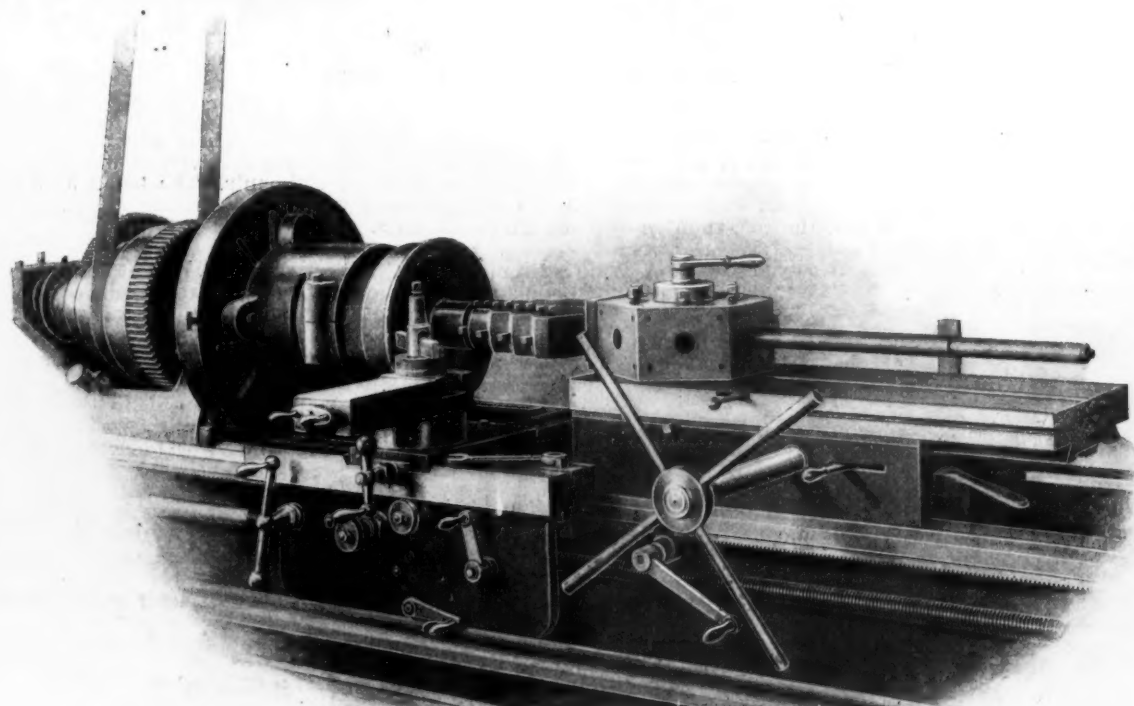
Special Appliances at the Works of the Lodge & Shipley Machine Tool Company.

A representative of *The Iron Age* recently had the privilege of examining some of the appliances and methods employed at the works of the Lodge & Shipley Machine Tool Company, Cincinnati. As is well known, the product of the concern is lathes, and lathes alone. Throughout the entire works there are devices intended especially to insure accuracy and to facilitate production. These are introduced at every stage in the building of a lathe, the result being a tool of the highest

boxes, each of which carries one of the screws. Only two or three threads are cut in the lower part of these boxes, this being sufficient to hold the screws. The two or three threads permit of rapidly performing the work of entering and removing the screws. The holder is provided with side set screws for holding each box and with end set screws for holding all of them. After the box has been filled with blanks a double milling cutter faces two opposite sides. The boxes are then turned one quarter, when the other two sides are faced.

Boring Lathe Head Stocks.

An extremely simple jig for boring the bearings for the spindle and back gear of a lathe head is shown in



Split Chuck for Holding Step Cone.

SPECIAL APPLIANCES AT THE WORKS OF THE LODGE & SHIPLEY MACHINE TOOL COMPANY.

standard. Three of these appliances are shown in the accompanying engravings.

Split Chuck for Holding Step Cones.

All step cones are bored out and then balanced upon straight edges. The chuck is a split sleeve which is bolted to the face plate of a lathe. At opposite sides near the outer end are formed lugs, horizontally through the center of which the metal is split. In each lug is a bolt by means of which the parts are drawn together to grip the pulley.

The boring tool also shown in the same engraving is stepped to correspond with the pulley it is intended to bore. At the corner of each step is a cutting tool held in place by a set screw. All of the steps of the cone are thus bored at the same time, and the rim is faced by a tool held in the tool post.

Jig for Milling Tool Post Screws.

The second engraving illustrates a jig for holding tool post screws for squaring the upper ends. It consists of an oblong box adapted to receive small split

Fig. 3. It consists of a casting formed with V's to receive the head stock. At each end are formed uprights having bushed openings which carry the boring bars. Since the axis of these are absolutely parallel with each other and with the V's, the alignment of the bearings cut must be perfect. The device is placed on a boring mill, power being transmitted to the boring bars by a universal joint, as shown in the engraving.

Germany's Large Contract for Swedish Iron.

For the account of the Gellivare Iron Ore Company of the Luossavaara-Kirunavaara Company and of the United Mining Company, Consul Broms, the director of the first named company, has closed a contract with several blast furnace proprietors in Germany for a long number of years. The negotiations were carried on through the Stockholm Discount Bank and the North German Bank in Hamburg, who assume the full responsibility of the contracts. According to programme the ores are

to be shipped via Lulea, and also on the opening of the Ofoten Railroad via Ofoten (the road will be finished about the beginning of 1903). As the Fjord of Ofoten can be kept free of ice all the year round, all ores intended for the Rhenish-Westphalian district will be shipped via Holland ports, and later via Emden. With regard to the delivery of the ores the sellers have reserved the right to exclude from delivery all ores which can be consumed

plant of the LaBelle Steel Company, has been bought by some parties, who propose to erect a manufacturing plant upon it. The kind of products to be turned out by the new concern has not been stated.

The auditor's report in the equity suit of Spang, Chalfant & Co., Pittsburgh, Pa., against the Spang Steel &

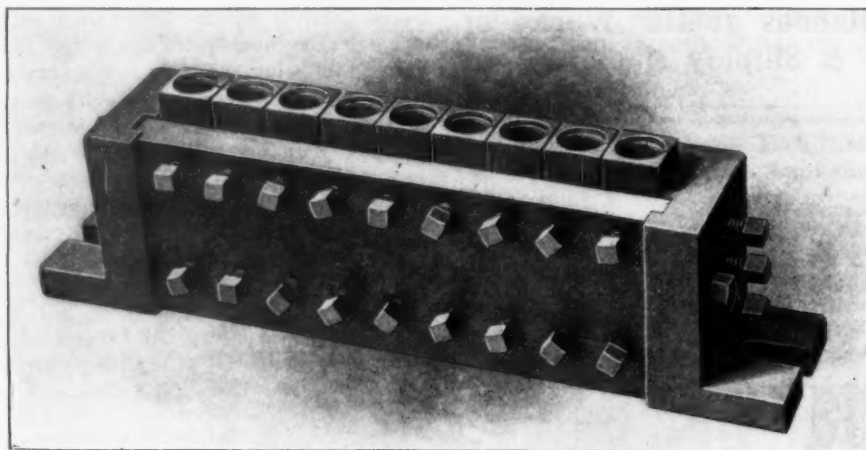


Fig. 2.—Jig for Holding Lathe Tool Post Screws for Milling.

in Sweden, as well as any ores which the German blast furnaces cannot make use of; these ores can then be sold to other countries. The German blast furnaces have, however, secured for many years the bulk of the Swedish high phosphorus iron ore output, the consumption of which in Germany has increased so largely of late. As a

Iron Company has been filed. There was a balance of \$47,226.08 in the hands of the receiver, of which \$659.37 was paid to preferred claimants. The balance of \$46,566.71 was awarded to Spang, Chalfant & Co., the remaining claimants.

From present indications the new Chester Tube Company, at Chester, Pa., promises to become one of the leading industries of the city; the entire plant is now running double turn. Not satisfied with turning out a large

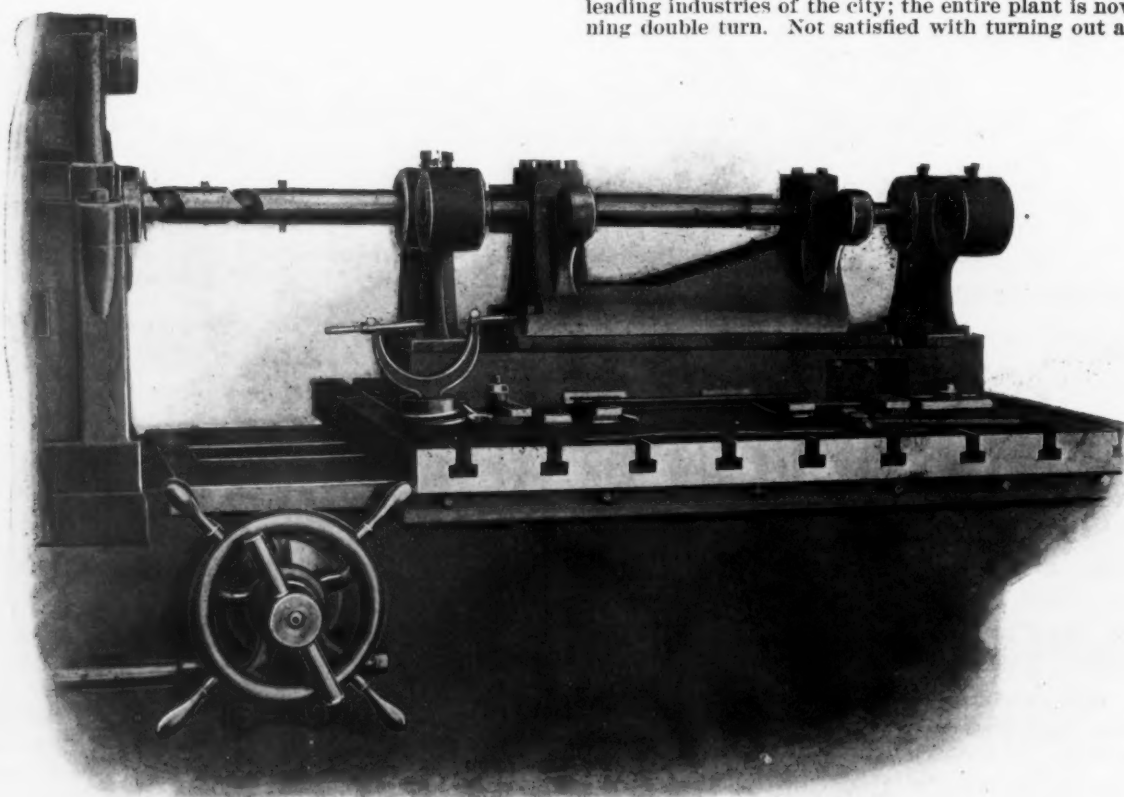


Fig. 3.—Jig for Boring Lathe Head Stocks.

SPECIAL APPLIANCES AT THE WORKS OF THE LODGE & SHIPLEY MACHINE TOOL COMPANY.

result of the contract the Luossavaara-Kirunavaara Company recently decided to increase their capital from 3,000,000 to 6,000,000 kroner.

A site of land, bounded by Ridge avenue and Belmont street, Allegheny, Pa., and immediately opposite the

supply of pipe, the company are now preparing to erect a mill for the manufacture of boiler flues. This will be run as a special department. Some years ago some boiler tubing was made at the old Chester Pipe & Tube Mill, but the output was very small and run as a side issue. It is expected that the same will be in operation in the course of a few months.

Industrial Consolidations and the Export Trade.

At a recent gathering in New York Charles R. Flint spoke on the subject of the "open door" and the relation to the export trade of the industrial consolidations. He said in part:

The intemperate criticism of aggregations of capital by would be political leaders, as unsound as the proposition to pay the American wage earner in 50 cent dollars, is nothing short of an attack upon American prosperity at home and an attempted embargo upon our export trade. Freedom of trade, supposed to be guaranteed by the laws and constitutions of this country, is thereby assailed. The combinations and organizations inveighed against are not alone the combination of capital, but what is of more importance, they represent aggregations of intellect and industry, and when these great properties and these great intellects which have created and directed the isolated concerns are united, then the highest efficiency is brought about in the manufacture and distribution of the products, and if any one suffers appreciably, it is only the non-productive middle man who has stood between the manufacturer and the consumer; while the wage earner is benefited by his wages being sustained, and in many cases increased, as well as by his greater ability to purchase the cheapened products, thus increasing consumption, manufacturing and opportunities for labor.

Centralization of manufacture and of distribution brought about by these great combinations of property and intellect not only secures the advantages of the highest development of special machinery, but, owing to the enormous production, the percentage of general charges is largely reduced. We have not the opportunity to enjoy the great technical education which Germany in a paternal way furnishes its citizens. There the man of scientific research speaks from the professor's chair in the morning, and in the afternoon directs the energies of a factory. But we have what is more than its equivalent in the benefits of the exchange of views between the directing heads and arms of these large corporations, resulting in the American inventor, the American wage earner and the American manufacturer, forming together a vast constructive and expanding power in the industrial world. The best results—and the "open door" will demand of us the best results—can be accomplished today only by well managed large organizations, and those most benefited by them are the masses. The condition of the American wage earners to-day is vastly superior to what it has ever been before. Their homes have more comforts than had the palaces of the nobility in centuries past. That party leaders should attempt to gain political advancement by proposing a plan of legislation to supplant that higher law which gives a reward to superior ability is, when viewed aright, an insult to the intelligence of the American people.

There is abundant evidence that this high standard of manufacture and distribution of products is brought about by these large organizations, thus enabling us to enter the markets of the world successfully, and that without them we are powerless to enter the open door and compete with countries employing cheap labor. To increase their export trade is one of the first efforts made by those who direct these organizations.

The progress of the world toward higher things means always the readjustment of old conditions disturbed. The struggle for human existence is the story often repeated of the survival of the fittest. To alleviate the sufferings and misfortunes of the few discomfited and disappointed in the progress of the world is the duty of every true, successful man, but to attempt to stay that progress toward its highest evolution, which is to benefit the many, is to run counter to the highest law of progress, and the highest law of progress is the highest law of man and God.

Now, it cannot be claimed that the ideal has been reached in these organizations; that the law should not exercise a reasonable supervision over their operation; that some of these corporations are not overcapitalized. Perhaps, having in mind some such capitalization, the wit of the Wall Street wag was justified in describing the syndicate as "a body of men entirely surrounded by water." But the securities of the corporations with inflated capital promptly find their level, and Wall Street tells the story of many an enterprise with a pretentious capital and an empty treasury, which starts upon a career of reorganization before organization has been fully accomplished.

To the extent that overcapitalization is an evil, it is better to deal with it by law after experience shall have taught how it can best be intelligently treated. It is largely correcting itself, and when it has appeared that overcapitalized concerns are short of confidence and credit, organizers of new concerns have adopted more

conservative financial methods. There are projects in Wall street seeking financial co-operation the organizers of which are now satisfied with one-half the capital proposed a year ago. Time not only heals wounds but corrects abuses.

Common experience teaches us that oftentimes an inflated estimate of values results in the owner being unable to secure even the intrinsic value. To secure real values the seller must get the buyer to approach a negotiation without suspicion, and overcapitalization engenders suspicion. The reckless organizer of these concerns by and by gets familiar with some old fashioned notions, without the necessity of having them impressed upon him by useless and often unenforceable statutes. It must be remembered, too, in advocating the adoption of drastic legal procedure for the control of these business corporations, as is at the time proposed, that they are not great public carriers, enjoying exclusive privileges to the extent of the territory they occupy, but are corporations engaged in business ventures, just as are business men, only the scale is larger. These corporations pay to the States their tributes in taxes and ask no franchise in return except the privilege to be a corporation, and to be free from personal liability. Whatever else these corporations secure by way of advantage comes not from the State, but from the experience, energy and skilled knowledge of the individuals united in their direction, and artificial restraint is only justified when practice has demonstrated, not when uninformed men have guessed, that the existence and operations of these corporations are harmful to the public welfare.

The evolution which results in these great industrial organizations is as natural as the progress of this community from a sparsely settled island into a great, thriving center of population and prosperity. The internal commerce between the States, free as it has always been, depends upon the freedom of its manufacturing and accompanying interests to develop along the lines of the greatest good to the greatest number. Not all the natural advantages of this country, not all the inventive genius and restless activity of our people, can offset the advantages of other countries through low wages and technical instruction, if legislation interferes with normal and legitimate industrial evolution, if we deviate from the wholesome principle of that maxim, honored in law and by tradition, which insures to every man the right to do with his own what he may choose, so long as he shall not thereby injure his neighbor. Let us not assume toward great industrial enterprises an attitude different from that with which we view all progress. Do not let the mere manifestation of evil by one corporation be made the basis for the condemnation of them all.

If there is no interference with the normal development of this industrial progress the consolidation of manufacturing interests and the association of the best skilled intellects with the largest financial means—we will be in a position to enter the markets of the world in competition with the cheap labor countries and enlarge our international trade.

The Louisville Bolt & Iron Company.—The buildings for the new plant of the Louisville Bolt & Iron Company, successors of the Anderson Iron & Bolt Company of Anderson, Ind., are completed. The new machinery for the increased capacity will be coming in now every day and be placed. The machinery of the Anderson plant will be shipped next week and the Louisville Bolt & Iron Company expect to have machinery for an output of 50,000,000 bolts per year, and expect to be in operation in the new buildings by March 10. The new buildings cover an area of nearly 3 acres and have been built with the view of making the Louisville plant a model one, and built on such liberal lines as to permit of increasing the capacity of the product to 75,000,000 bolts per annum. Immediately upon getting the bolt plant in operation the company will begin on plans for building an equipment for a scrap rolling mill to have a capacity of 12,000 tons per annum. The company have contracted for their product to keep them fully employed until late in the summer. S. S. Bush is president; L. S. Taylor, vice-president and general manager, and C. A. Parker, secretary and treasurer.

J. B. Coleman of Elmira, N. Y., is building a considerable number of the Emmet Horton machines for making grape baskets. The Robison Basket Company of Painesville, Ohio, have 24 of these machines, with a total capacity of 96,000 grape baskets per day. The machines, in one continuous process, arrange a bottom and several sections of sides accurately in place, bind the bottom and double bind the top edges of the basket, securing all with staples, driven home, accurately clinched, finally discharging upon the floor a completed basket, so true and accurately made as to throw the hand made article in the shade.

Canadian News.

Commodity Rates Restored.

In November the Railway Freight Association concluded to abolish the tariffs which were known as "commodity rates," and at once the manifold list of articles, save sugar, which had been carried at these rates, became subject to the general tariff. An account of the origin and purpose of the commodity rates was given in these columns at the time of the change. When the increased rates were put in force there was a general outcry among the manufacturers affected. As a result of the campaign of opposition that has been kept up, the Canadian Pacific & Grand Trunk Railway companies have returned to the practice of quoting special rates again on the commodities formerly favored. But the new commodity rates are not to be so low as were the old ones. A particular case may be mentioned to show the difference. A year ago the commodity rate on iron at a given point was 12 cents per 100 pounds on less than carload lots, and 10 cents per 100 pounds on carloads; the new commodity rates are 16 and 13 cents respectively. But the new rates are 3 cents less than the general rates that have been in effect since November 15, which were 19 cents on less than carloads, and 15 cents on carloads. There are some articles on which the new rates are as low as were the old ones, but on the list of iron and steel goods the differences are fairly represented by the example given. The commodities involved are bolts, nuts, washers, chains, horseshoes, corrugated iron, galvanized iron, iron pipe, iron pipe fittings, boiler tubes, nails, rivets, screws, tacks, iron and steel wire, wire rope, pig iron, railway bolts, spikes, splice bars, fish plates and angle bars. On lots less than carloads and on carloads the rates per 100 pounds are respectively as follows from Toronto: To Montreal, 21 and 16 cents; to St. Thomas, 18 and 14 cents; to Woodstock, 16 and 13 cents; to London, 15 and 14 cents; to Hamilton, 11 and 9 cents; to Owen Sound, 20 and 15 cents; to North Bay, 20 and 19 cents; to Brantford, 15 and 12 cents; to Sarnia and Walkerville, 21 and 17 cents.

There is no doubt that the hardware section of the Toronto Board of Trade was chiefly instrumental in inducing the railways to modify their rates. The report of the chairman of that section, Peleg Howland, showed very clearly that the rates discriminated against Toronto and in favor of Buffalo and other centers of distribution. So strong was this showing, and so good a case did it make out for interference by the Railway Committee of the Government that the railway companies complained of the unfairness of being condemned unheard, and before an opportunity was given them to remedy the alleged grievances. They declared their willingness to remove any injustice, stating that the object of the commodity rates in the first place had been to protect Canadian industries from United States competition. The Montreal Hardware Association did not proceed in the same manner as the hardware section of the Toronto Board of Trade, but appointed a special committee to inquire into the subject. The findings of that committee were laid before the railway companies. In the end the roads saw their way to making the reductions described, the same to take effect March 1.

Hamilton and the Nickel Industry.

John Patterson, the promoter and organizer of the chief enterprises which have done so much to make Hamilton the chief industrial center of Ontario, if not of the Dominion, announces progress with the work of preparing for the manufacture of nickel in that city. Premier Ross' statement in the Legislature that the Government would bring in legislation providing for a stiff mineral tax on all nickel ore and matte produced in Ontario, with a rebate of all or most of such tax upon so much of the material as should be refined in Canada appears to have given a fresh impulse to the undertakings in which Mr. Patterson and his associates are engaged. One result of the new policy is the decision to quadruple the capacity of the Hoepfner Refining Company's works, whose construction on the lines of the original plan is close to completion. It is definitely decided that the works shall treat, not only the zinc ore, for the refining of which they were started, but also nickel-copper matte. Mr. Patterson says that contracts have been made with the Nickel Steel Company of Canada and with the Nickel-Copper Company of Ontario for the refining of nickel matte at the works, the contractors to supply 60 tons of matte a day. In the Hoepfner works 3600 horsepower of electricity will be used, the electricity to be furnished by another concern who were promoted and organized by Mr. Patterson—namely, the Cataract Power Company. As soon as the Hoepfner refining works are completed—they are expected to be ready for productive operations in the spring—the nickel-steel plant, Mr. Patterson says, will be started. The buildings and machinery for that plant are to cost about \$8,000,000.

It looks as if Hamilton were proceeding from the two extremities of a great nickel-steel industry and building toward the center. First was constructed the iron smelting plant of the Hamilton Blast Furnace Company. An independent concern beside this were the Ontario Rolling Mills Company. In time these amalgamated under the name of the Hamilton Steel & Iron Company, who are enlarging their furnace capacity and adding a steel plant. Then were formed the Nickel-Steel Company of Canada, with \$20,000,000 capital, in whom are influential Hamilton capitalists, and whose works were always understood to be intended for Hamilton. Later, Hamilton men formed the corporation under Ontario laws known as the Nickel-Copper Company of Ontario, with a capital of \$10,000,000. It was generally taken for granted that this company and the other would use the ampler powers granted under both Dominion and Provincial charters to carry on one business. Finally, the Hoepfner Refining Company's works are currently spoken of as if they were already included in the same system. There is probably a sufficient community of interest between the Hamilton Steel & Iron Company and the nickel companies to ultimately weld them into one corporation. It looks as if some such process were contemplated, if not already at work.

Nova Scotia's Iron Prospects.

Mr. Goudge, who moved the address in reply to the speech from the throne at the opening of the Nova Scotia Legislature, referred to the iron industry and prospects of the Province. In 1899 the production of Nova Scotia iron ore was only 16,169 tons, as against 31,000 tons in 1898. There was a small increase of 25 tons in the production of manganese ore. Of coke there were 55,484 tons produced, as against 42,000 tons in 1898. The Belle Isle iron mines, the speaker said, contained enough ore to supply Nova Scotia for all time to come. The effect of this supply on the coal industry of Nova Scotia was already apparent. In 1878 the coal sales of the Province amounted to only 693,000 tons. In 1899 they amounted to 2,645,397 tons. With regard to the iron industry, he considered it probable that in three or four years Nova Scotia would be supplying pig iron to the British iron and steel industries. With the development of an export trade there is sure to grow up a shipbuilding trade, and Mr. Goudge cited the tendencies pointing to the latter outcome.

The Collingwood Iron Project.

On the 27th ult. the scheme of the American capitalists who propose to establish smelting works, steel plants and rolling mills at Collingwood was laid before the Town Council and the Council of the Board of Trade in its final shape. The amount to be expended on smelting furnace and rolling mills is to be \$1,300,000. The smelting furnace is to have a capacity of 200 to 250 tons per day. It will be designed to use coke, supplemented, if necessary, by charcoal. It will be equipped with the latest labor saving devices for the unloading of ore, &c. If desired, the furnace will be furnished with a pig bed in which to make merchant pig iron, though it is the intention to make the greater part of the output of the furnace into steel. There will be an open hearth steel plant, containing Wellman rolling open hearth furnaces of the latest type. The finishing mill will be capable of producing bars and tank and ship plates. It will be designed also for the production of nickel-steel in bars.

The new company organized at Collingwood for the building of ships at that place are pushing their works forward energetically. They are called the Collingwood Steel Shipbuilding Company. They have purchased the machinery of the shipbuilding plant at Everett, Wash., and a number of carloads of this machinery are on the way.

C. A. C. J.

Among the mechanics' liens filed against the Third Avenue Railroad Company of New York are the following: National Conduit & Cable Company, \$144,389.01; John A. Roebling's Sons & Co., \$291,178.09, and Westinghouse, Church, Kerr & Co., \$22,416.20. Against the Third Avenue Railroad and the Manhattanville road the mechanics' liens are: Lorain Steel Company, \$313,522.94; Westinghouse Electric & Mfg. Company, \$507,861, and the Pennsylvania Iron Works Company, \$48,732, and against the Union Railway Company, Lorain Steel Company, \$232,682.82, and the American Steel & Wire Company, \$22,881.81.

The large machine shop of the Johnston Frog & Switch Works, at Sixth and Butler streets, Chester, was totally destroyed by fire some days since. The building was 180 x 65, and was erected in 1885. Since the finishing of the plant it has not been idle for any reason for more than a week at a time. The total loss is estimated at \$50,000, fully covered by insurance. When the appraisal is completed the works will be rebuilt at once.

The Duty on Charcoal Bar Crop Ends.

WASHINGTON, D. C., March 6, 1900.—The Secretary of the Treasury has made a very important decision with regard to the dutiable classification of certain crop ends or clippings from iron bars designed for use in the manufacture of crucible steel. These clippings were originally classified as scrap iron under paragraph 122 of the Dingley act, but the practice at New York and other Atlantic ports was afterward modified and they were assessed for duty at \$12 per ton as iron bars, &c. The importers employing this material have made elaborate representations to the Department as to the origin of the clippings and the use to which they are put, with the result that the Secretary has finally decided to restore the old practice under which importations were held to be dutiable as scrap iron at \$4 per ton. The decision of the Department is incorporated in the following letter addressed to the Collector at New York:

"The Department is in receipt of your letters dated the 13th and 16th ult., reporting upon the communications of J. H. L. Todd and Henry Disston & Sons, concerning the proposed change in practice at your port in the classification of crop ends or clippings from Sweden charcoal iron bars or rods. It appears from the report of the Appraiser at your port, under date of the 17th ult., that the crop ends or clippings in question are the rough slag ends cut off or clipped by a shearing machine from ingots of charcoal iron rolled down into a bar of specific width and thickness; that the charcoal iron bars from which such rough slag ends are clipped range from 8 to 15 feet in length, and that the iron bars and the crop ends or clippings are alike used in the manufacture of crucible steel.

"The practice formerly prevailing at your port was to classify the merchandise as scrap iron or scrap steel and to assess duty thereon at \$4 per ton under paragraph 122 of the act of July 24, 1897, but the practice was subsequently changed and similar importations were classified under paragraph 124 of said act, providing 'that all iron bars, blooms, billets or sizes or shapes of any kind in the manufacture of which charcoal is used as fuel shall be subject to a duty of \$12 per ton,' as the result of the corresponding change in the advisory returns of the Appraiser affecting that class of merchandise in accordance with a resolution adopted at the conference of the United States appraisers, held at New York, from September 26 to October 7, 1899.

"Paragraph 122 of the act of July 24, 1897, imposes a duty of \$4 per ton on 'wrought and cast scrap and scrap steel,' and that paragraph further provides that 'nothing shall be deemed scrap iron or scrap steel except waste or refuse iron or steel fit only to be remanufactured.'

"You state that as the result of your inspection of the samples submitted to you by the Appraiser you are convinced that the articles represented by such samples are the product of the scrap heap or the rolling mill; that they are all rejected or refuse pieces from the bar or rod produced in the process of manufacturing the bar or rod, and that they are in no sense 'iron bars, blooms, billets, or sizes or shapes of any kind,' as no pieces are alike in dimensions or in general characteristics.

"In reply to the assertion of the Appraiser that 'the percentage of pieces cut at both ends found in the shipments has convinced this office that perfect bars are being cut up to evade the duty of \$12 per ton provided in paragraph 124,' you state that cutting up bars into such triangular shapes reduces the market value of a valuable article to such an extent that the difference in the selling price in the United States between a bar 8 to 10 feet in length and an irregular piece like the alleged scraps in question would not compensate for the difference in duty alleged to be saved thereby, as you are informed that the difference in the selling price of the bars and the clippings ranges from £3 to £5 sterling per ton, and that you have, therefore, classified the entries number 934 and 5708 as scrap iron under the provisions of paragraph 122.

"In *Schlesinger vs. Beard* and *Schlesinger vs. United States* (120 U. S. Rep. 264) cited in Treasury decision 8054, dated February 14, 1887, the articles in suit were certain punchings or clippings of wrought iron boiler plates and wrought sheet iron left after completion of the process of manufacture of the boiler plates into boilers, and of the ends of bridge rods and beams of wrought iron cut off to bring the rods and beams to the required length and to remove imperfections. In that case it was decided that the articles were scrap iron, and that the only question was as to whether or not they had been actually used. In this connection it will be observed that the words 'that has been in actual use' which appear in corresponding provisions for scrap iron or steel in prior acts, were omitted in the act of 1890, and subsequent tariff acts.

"The Department, in promulgating the foregoing decision, held that 'steel crop ends,' which consist of the ends of railroad iron cut off in the process of manufac-

turing the rails, also come within the scope of said decision . . . and are entitled to entry as 'scrap steel,' and in a subsequent case which came before the Department it was decided (T. D. 8214, dated May 2, 1887) that 'iron turnings, clippings and borings' come within the scope of the aforesaid decision of the Supreme Court, and prior departmental rulings in conflict with that conclusion were revoked.

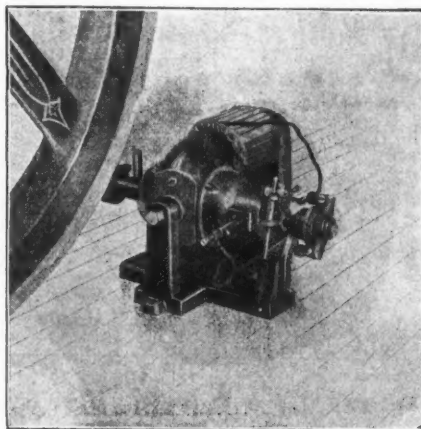
"In view of the specified words 'bars, blooms' and 'billets,' immediately preceding the general words 'or sizes or shapes of any kind,' the Department is of opinion that the general words contemplated sizes or shapes of iron which have been intentionally made or specifically manufactured into such sizes or shapes, and not irregular pieces of iron which incidentally result from the manufacture of a particular article, and that was the legislative intent in framing that paragraph.

"After a review of all the facts in the case it appears that the crop ends or clippings under consideration are waste or refuse iron or steel, fit only to be remanufactured, and have no mercantile value for any other purpose, and in view of the principle that where the duty prescribed is based on the use of an article which is set out in the statute such use is controlling in the classification of the merchandise, the Department is forced to the conclusion that paragraph 122 of the act of July 24, 1897, is more specific than paragraph 124 of said act, and your action in classifying the two importations referred to as scrap iron under the former paragraph is deemed and held to be correct."

W. L. C.

The Auto-Sparker for Gas Engines.

The auto-sparker made by the Motsinger Device Mfg. Company is intended to provide electric current for the ignition of the mixture in gas and gasoline engines. It



THE AUTO-SPARKER FOR GAS ENGINES.

consists of a small dynamo operated by a friction wheel on the armature shaft pressing against the fly wheel of the engine. The small size of this wheel, as compared with the fly wheel, makes the dynamo run at a sparking speed with the ordinary turning over speed of the engine. A governor is provided for keeping the speed of the dynamo uniform, since the speed would be too great when the engine is running normal. The governor acts on a steel point by a tapered sleeve, which raises the friction wheel off of the fly wheel just enough to at all times keep the speed the dynamo is set for, regardless of the speed of the engine. This insures the same good spark in running that is obtained in starting.

The following are the topics of the lectures on metallurgy, to be delivered during March in the Columbia University series at the American Museum of Natural History on Saturday evenings: March 10, Albert Sauveur, "The Constitution of Metallic Alloys in the Light of Modern Research." March 17, Henry Souther, "Toledo Blades: Rationale of the Procedure in Manufacturing Them and Other Steel Objects Explained by the Microscope." March 24, Prof. H. O. Hofman, "Lead Smelting in the United States," and March 31, Prof. J. W. Richards, "Aluminum."

The Russian-American Export & Import Company is the title of an organization just formed to develop trade with Russia and the Oriental countries, especially in the line of machinery, tools, railway material and manufactured iron and steel. The company's offices are at 120 and 122 Liberty street, New York, I. Rich being the manager.

The Manufacture of Wire Fencing.

(With Supplement.)

Smooth wire has long been in use for fencing. The manufacture of woven wire fencing can therefore hardly be called a new industry. Yet like many other branches of trade its development into a business of importance is a matter of such recent occurrence that it seems new. Only within the past 10 or 15 years has attention been given to the manufacture of smooth wire in a form suitable for field fencing. It then gradually becomes a staple article in the hardware trade, and merchants now carry it in stock in rolls of various styles and sizes, from which such lengths can easily be cut as are desired. A prominent part in the development of the business which has thus made woven wire fencing a feature of hardware merchants' stocks has been taken by E. F. Shellabarger, now of De Kalb, Ill. Mr. Shellabarger, then living in Ohio, became interested in an early form of wire fence, using wood pickets. Being of an inventive turn he saw the desirability of improvements, and patented what was afterward known as the Hartman steel picket fence; and in 1886 became connected with the Hartman Mfg. Company of Beaver Falls, Pa. In 1891 he removed to De Kalb, Ill., and on December 28

operations on the ground floor. The extent of the buildings is shown by the following dimensions: Fence factories, 72 x 315 feet and 104 x 208 feet; gate shop, 40 x 160 feet; machine shop, 40 x 90 feet; warehouses, 90 x 285 feet and 185 x 240 feet. The plant is conveniently located for the receipt of raw materials and the shipment of finished products, having track connections extending into their ground from the Chicago & Northwestern and the Chicago Great Western railroads. They draw no wire, but purchase it from wire manufacturers, using galvanized wire exclusively. Nor do they operate a power plant, running all machinery by electricity obtained from the De Kalb Electric Company, who furnish light to the city and power to factories. Motors are placed at convenient locations through the plant, enabling portions of the machinery to be operated independently or every department in full according to the requirements of the trade or the season. This arrangement has proved much more economical than operating a steam power plant, which would necessarily be of large capacity to meet the requirements of the entire works in the light of the manufacturing season.

The manufacture of woven wire fencing, as conducted by this company, is deeply interesting. As above mentioned, they have two fencing factories, in both of which machines are installed to produce all varieties of fencing turned out by the company, which comprise field

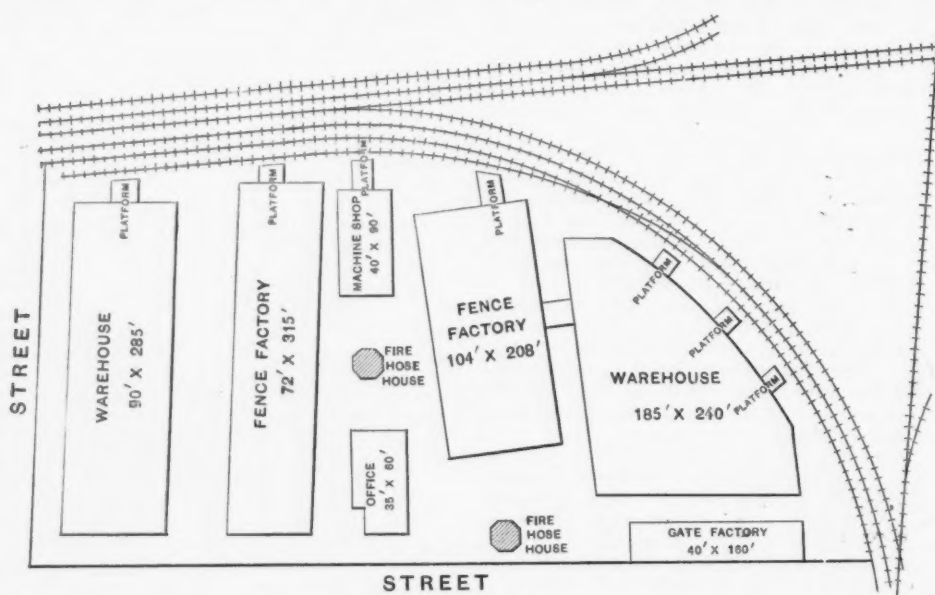


Fig. 7.—Plan of Works.

THE MANUFACTURE OF WIRE FENCING.

formed a corporation under the name of the De Kalb Fence Company, to manufacture woven wire fencing exclusively. The preparations for manufacturing were made during the winter, and in April, 1892, the company began to turn out fencing, using machines specially designed by Mr. Shellabarger for this purpose. All the fence machines and improvements in machines used by the company since then have been his invention, except a machine for making three-wire pickets, which was designed and built by his father, M. M. Shellabarger, also interested in the company, and after whom their ingeniously constructed poultry fencing, known as M. M. S. fencing, was named.

The business of the company steadily grew. A new building was erected or some addition was made to the plant every year. It is now claimed to be the largest plant of its kind in the world. Last year the company manufactured 1,600,000 rods of wire fencing, working up for this purpose 12,000,000 pounds of wire. E. F. Shellabarger is president and treasurer of the company and Judson Brenner is secretary. Mr. Brenner has been connected with the company from the beginning, and through his able business management has contributed largely to the commercial success of the enterprise. The extent of the plant and the character of the equipment are shown in accompanying engravings.

The De Kalb Fence Company occupy a tract of ground comprising over 7 acres, largely covered by their buildings. These buildings consist of two fence factories, a gate shop, a machine shop, two warehouses and an office building. All the factories and warehouses are one story high, the company preferring to conduct their

and hog fencing, poultry fencing, lawn and cemetery fencing and park fencing. They have over 130 different machines in these two factories. The variations in height, fabric, mesh, pickets, &c., constitute a remarkably large assortment, much greater than would be supposed, no less than 222 different styles, sizes and varieties of fencing being constantly carried in stock to supply the trade. The highest fence made is 8 feet, and the smallest regularly turned out is 13 inches. The machines used are in each case specially adapted to turning out one kind of fencing, but in manufacturing narrow widths two rolls of fencing are often turned out at the same time on one machine. With this explanation it will be understood that in the company's factories are to be seen quite a variety of machines, differing radically from one another according to the character of the work they turn out.

The improvements made in Mr. Shellabarger's more recent machines are quite marked. In his first machines, for instance, the pickets for hog and field fencing were crimped in a special machine for that purpose and then inserted by hand in their proper place in the weaving machine previously prepared with cables or longitudinal wires after the fashion of a cloth weaver's warp. In the improved machines the whole process is done on one machine which automatically draws the wire from a side reel into the proper place for a picket, cuts it off, and crimps it and locks it into the cables. Probably the most interesting machines are those weaving poultry fencing. In this fencing fine wire is wrapped alternately on two strands of the heavier wire or cables running longitudinally. In crossing back and forth they

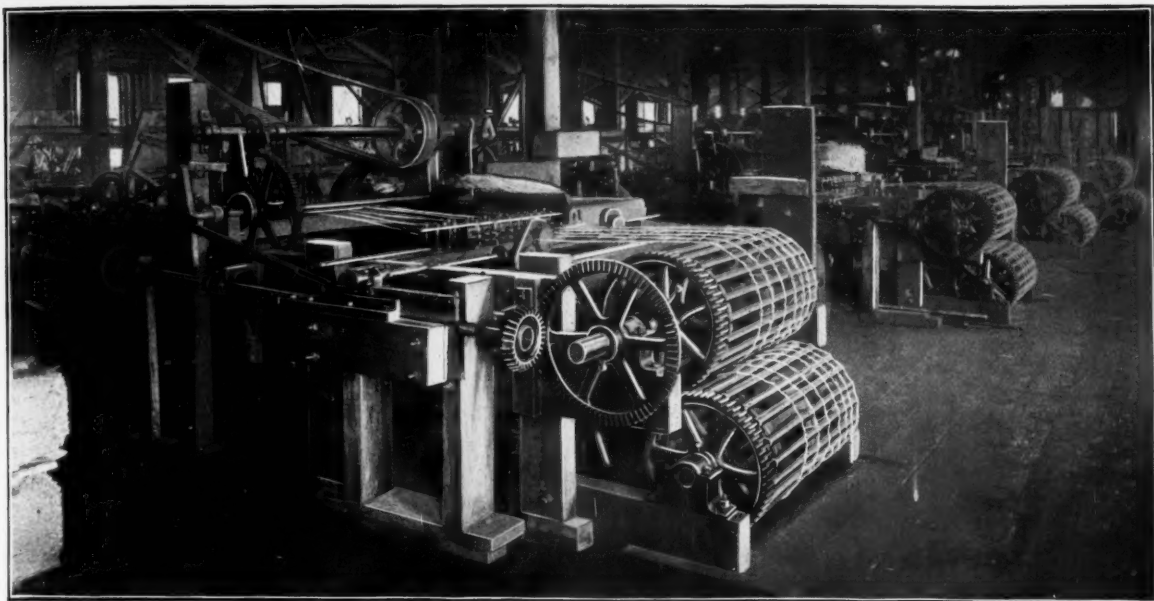


FIG. 1. MACHINES MAKING CABLED FIELD AND HOG FENCING.

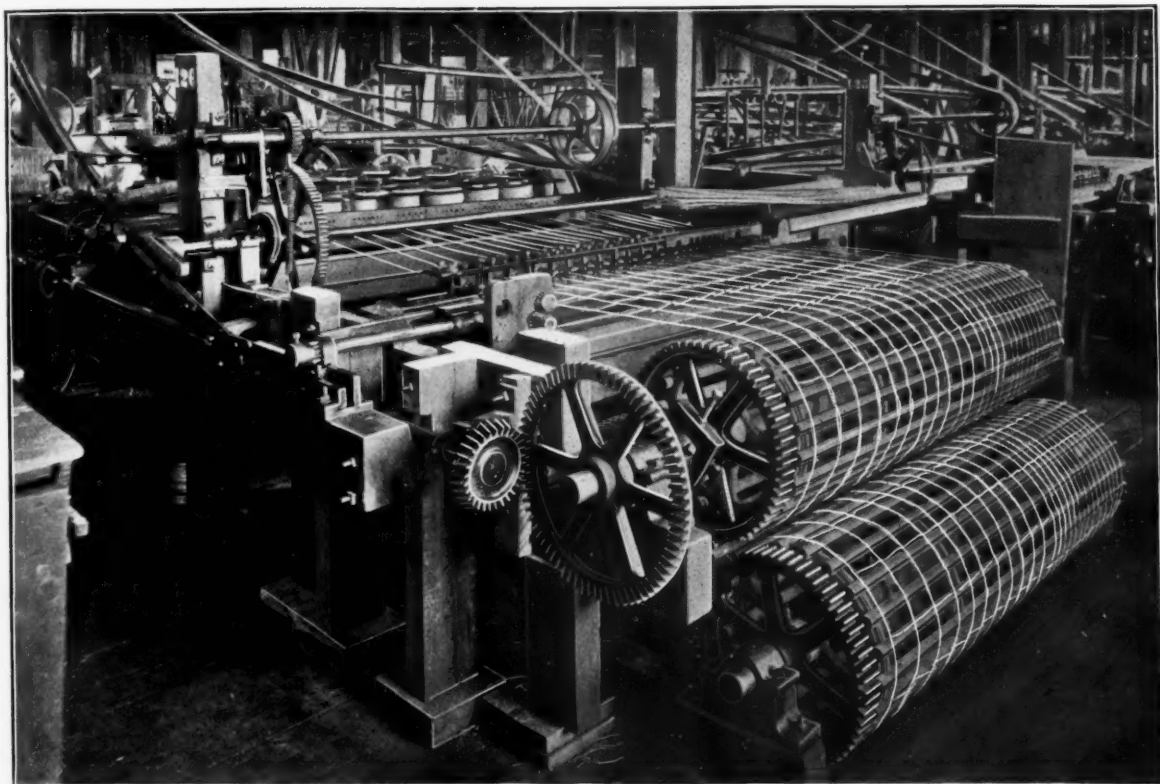


FIG. 2. MACHINES MAKING CABLED POULTRY, GARDEN AND RABBIT FENCE.

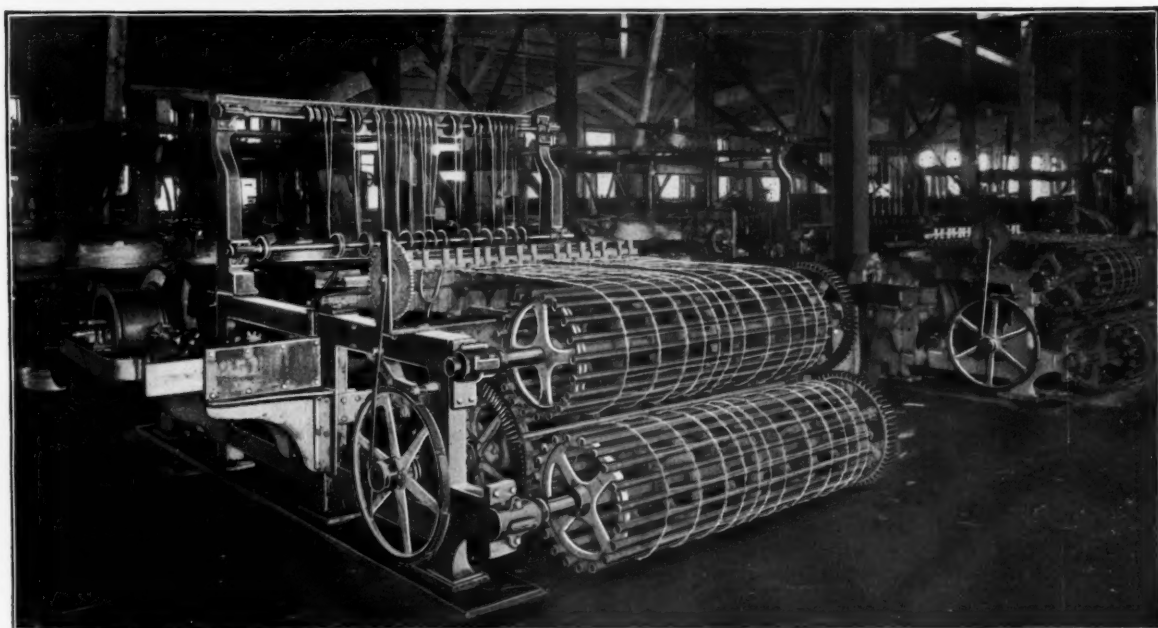


FIG. 3. AUTOMATIC MACHINES MAKING CABLED FIELD AND HOG FENCING, TWO WIDTHS OF FENCE BEING WOVEN AT SAME TIME.

THE MANUFACTURE OF WIRE FENCING.

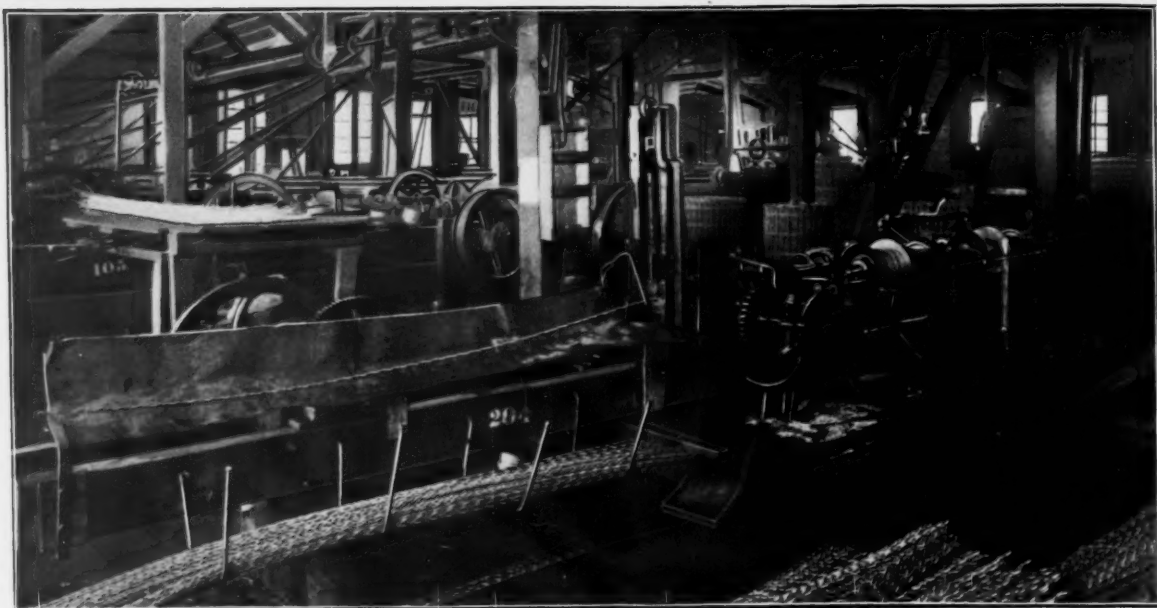


FIG. 4. AUTOMATIC MACHINE MAKING ORNAMENTAL STRIP, ALSO PICKETS FOR STEEL WEB PICKET FENCE.

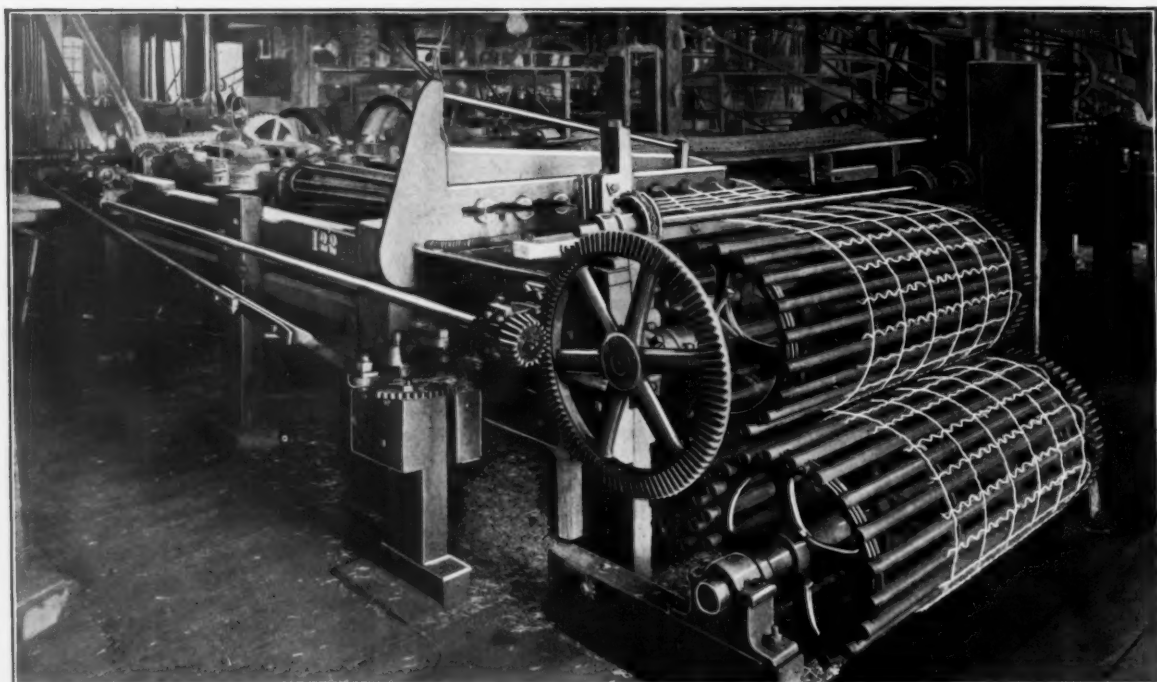


FIG. 5. MACHINE MAKING STEEL WEB PICKET LAWN FENCE.

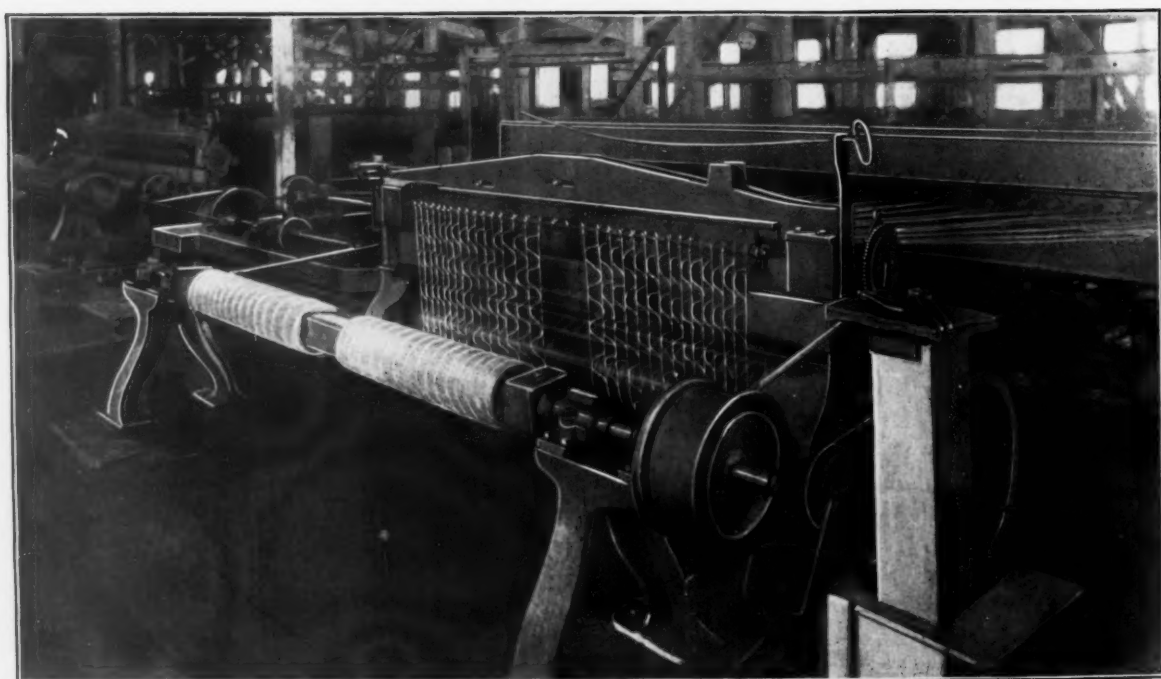


FIG. 6. AUTOMATIC MACHINE MAKING M. M. S. POULTRY FENCING—TWO WIDTHS AT ONCE.

THE MANUFACTURE OF WIRE FENCING.

form the mesh, which can be made large or small as desired. The guides through which the fine wires pass are shifted automatically from one cable to the other as soon as the necessary wraps are made. The shifting is done by an ingenious arrangement in connection with the cable twistors in the head of the machine, operated by a series of gears moved in unison with one another. The poultry fencing thus made is of unique pattern, having a cabled selvage and a cable every foot in the height of the fence. The lines all being parallel in this fence, the tension is distributed equally throughout it

left for feeding the weaving, picket or cable twisting machines. In some of the weaving machines it is desirable to feed the wire from long spools instead of coils and an arrangement has been devised for filling a large number of spools at one time. The company have adopted 20 rods as the standard length for their rolls of field and poultry fencing. The old standard for poultry was 150 feet, but it has been found in practice that the new standard is better for the trade, as not so much scrap accumulates on the hands of a retail merchant with the greater length. Lawn fence is put up in rolls of 300 feet.

Gates and Posts.

An important adjunct to the fence business is the manufacture of gates and posts. An entire building is devoted to this purpose, which is run by its own motor and is equipped with punches and other machinery. The company manufacture three distinct lines of gates—namely, steel frame garden and lawn gates, wood frame garden and lawn gates and pipe frame farm gates. Their pipe frame gate is of novel construction, which secures unusual rigidity. Instead of being bent at the corners, as is customary, the pipe is cut to the exact lengths required for the sides and ends. Two malleable castings are then used for each corner, one on the inside and the other on the outside, which are of a shape to hold the ends of the pipes firmly when bolted together. The castings are made with a lug on each end to enter holes drilled in the pipes, and thus provide additional rigidity. Diagonal braces extend across the gate, passing through holes in the inside corner castings and secured by nuts on the ends. Fencing of any pattern desired is fastened to the framework, and thus a farm gate is secured which is at once ornamental, light and



Fig 8. A Load of $1\frac{1}{10}$ Miles of 2-Foot Hog Fence.

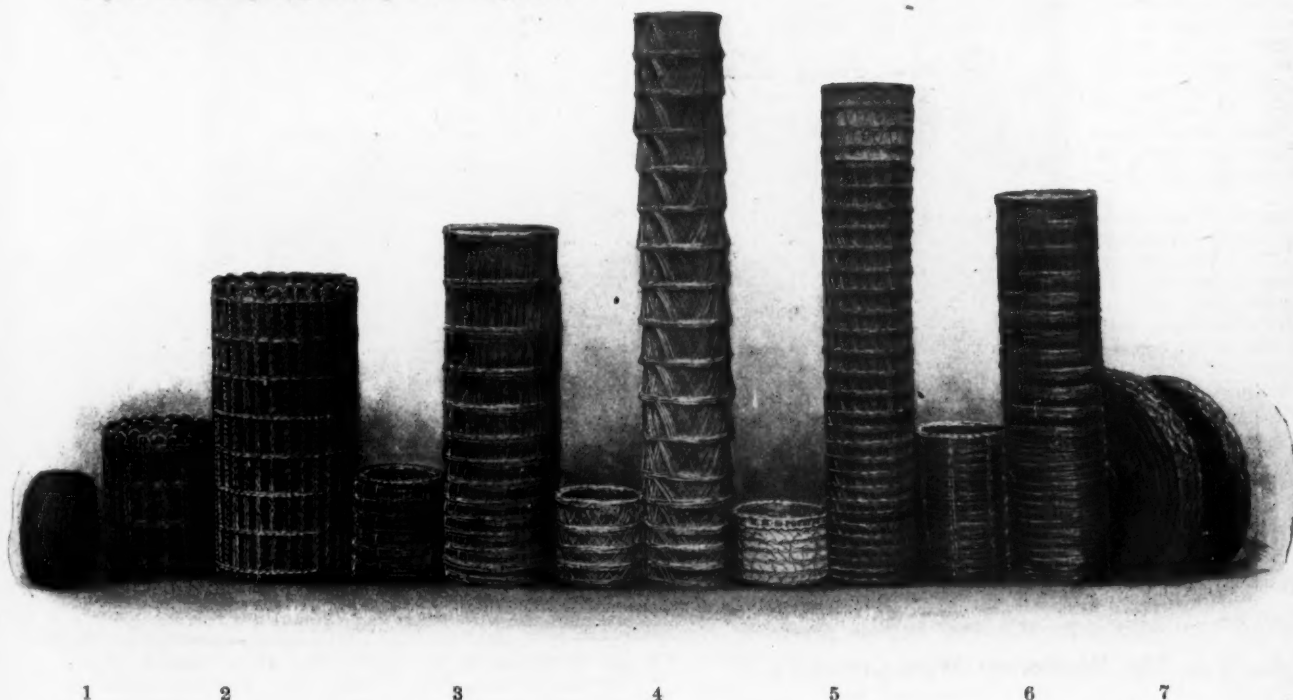


Fig. 9.—View Showing Range of Sizes for Leading Varieties of Fencing.—No. 1, Ornamental Strip; No. 2, Lawn Fence, 24 to 50 Inches High; No. 3, Cabled Field and Hog Fence, 17 to 58 Inches; No. 4, M. M. S. Field Fence, 14 to 96 Inches; No. 5, M. M. S. Poultry Fence, 13 to 84 Inches; No. 6, Cabled Poultry, Garden and Rabbit Fence, 24 to 63 Inches High; No. 7, Wire Board, $2\frac{1}{4}$ and $4\frac{1}{4}$ Inches Wide.

THE MANUFACTURE OF WIRE FENCING.

and on a straight line. Owing to this construction a full roll of 20 rods can be stretched at one time without injury. The posts are placed 16 to 20 feet apart. This enables a saving to be made of fully half the number of posts ordinarily required, while top and bottom rails are rendered unnecessary, thus making a saving in that respect. The body of the fencing can be stretched as firmly as the edges.

The weaving machines are all built to weave the fencing in a horizontal position, the completed fencing being rolled on a large drum or cylinder not very high from the floor, so that the finished roll can easily be taken off the drum and removed. The machines are arranged with the finishing ends near the sides of the factories, thus leaving a space down the centers of these buildings for bringing in the coils of wire to be woven. These coils can thus be placed on reels on the right or

unusually strong and rigid. No less than 180 different kinds of gates are carried in stock, but special gates are easily made to fit any space. Various patterns of steel posts are made for either lawn or field fencing.

Machine Shop.

The company built a machine shop two years since and now make all their own machines. This was found desirable, because improvements are constantly being devised and new forms of machines are being designed and tested, and the progress of such work can be more easily supervised when done in their own shop. The equipment is of the most approved character, comprising automatic gear cutters, milling machines, drills, planers, &c. The scope of the work done is indicated by the fact that a 16-foot planer and a 5-foot radial drill are included in the equipment. An electric motor runs

all the machines in this shop, which is claimed to be the best equipped shop to be found in that part of the country.

The office building is larger than would appear essential for an establishment of this kind, but a great deal more clerical work is being done than merely keeping the ordinary manufacturing and commercial accounts. The character of the business requires much attention to be given to advertising. A large force is employed in folding circulars and addressing envelopes to the trade, the entire country being covered very thoroughly. An enormous amount of printed matter is thus distributed.

For the convenient distribution of their product the company carry large stocks in their own warehouses at Kansas City and San Francisco. The greater part of the country is reached by shipments direct from the works, their two large warehouses enabling them to carry sufficient stocks to promptly meet the requirements of their customers. They have recently established an important foreign connection by appointing as their special representatives Rotherham, Wood & Co., Melbourne, Australia, who will handle their trade in Australia, Tasmania and New Zealand. Large as their business was in 1899, they are expecting a still better trade this year. Their shipments in November and December were nearly four times as heavy as in

may be called at 130, and in the event of liquidation shall receive 130 per cent. and divide all assets with the common after the latter has received 100 per cent.

The Steel Sheet Combination.—A meeting of the heads of sheet concerns, which expect to be taken over by the American Steel Sheet Company, was held in the Vandergrift Building, Pittsburgh, on Wednesday and Thursday of last week. Some details were gone over relative to the proposed combination, and the method of getting at the proper way of taking inventory of plants, stocks of material and supplies on hand was discussed. Nothing of special importance was done, but another meeting is to be held before March 20, and it is hoped to have the organization completed and in force by April 1. It is claimed that the details relating to the finances of the deal have been satisfactorily arranged. J. G. Battelle of the Plqua Rolling Mill Company, Plqua, Ohio, is very prominently mentioned for president of the new concern.

Large Steel Cars.—The largest steel cars ever built were finished last week by the Pressed Steel Car Company and shipped per the instructions of the Chicago, Lake Shore & Eastern, for which road the company are

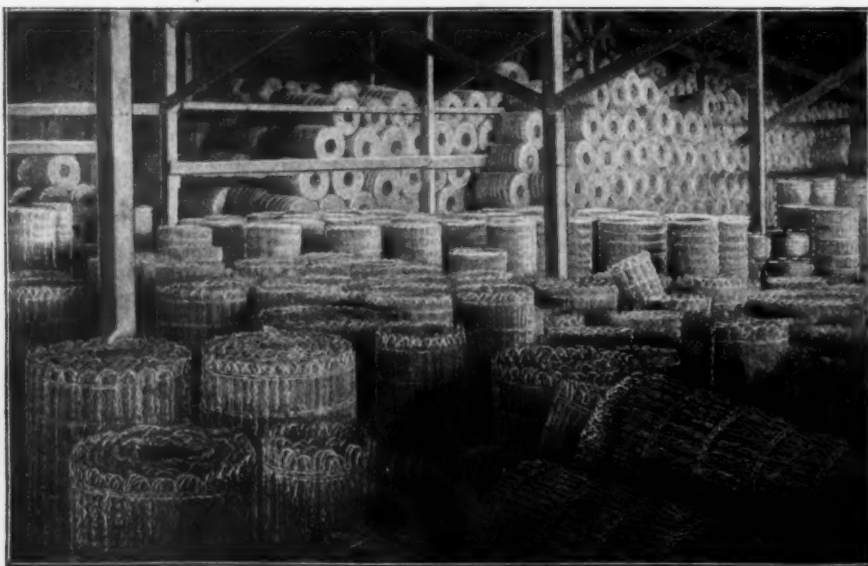


Fig. 10.—View in Warehouse No. 2, also used for Assembling Orders and Shipping.

THE MANUFACTURE OF WIRE FENCING.

the corresponding months of 1898, showing that advanced prices have not cut down the demand.

The Washburn Wire Company.

Preliminary negotiations have been completed for the organization of a corporation, to be known as the Washburn Wire Company.

The capital stock of \$1,500,000 has already been underwritten by Kidder, Peabody & Co. of Boston and their associates. The work of constructing the plant will be commenced immediately. Charles G. Washburn will be president of the corporation and John D. Curtis general manager. The works will be located on tidewater, and a site has already been secured. The plant will comprise open hearth furnaces, a blooming mill, billet and rod mills and a wire mill. It is expected that the wire mill will be completed and running in eight months from April 1, and that the entire plant will be in operation before April 1, 1901. The mill will be run upon the higher grades of wire and specialties, and it is not proposed to engage in the manufacture of the coarser products. A complete staff of engineers are already under contract, and the work will be pushed vigorously to completion. Kidder, Peabody & Co. of Boston will be the fiscal agents of the corporation, and will be represented upon the Board of Directors.

A Boston newspaper reports that the preferred stock of the Washburn Wire Company is to be a peculiar security, being entitled to 7 per cent. cumulative dividends and to share any dividends equally with the common stock after the latter has received 8 per cent. It

constructing 1000 of these coke cars. One hundred cars comprised the first shipment, and the company expect to send the 40 cars a day from the McKees Rock plant until the order is filled. The cars are being forwarded to the Connellsville coke region to be loaded with coke for the Illinois Steel Company. The new cars, which are creating interest in railroad circles, both on account of their size and their new features, have a coke capacity of 80,000 pounds, and weigh 39,000 pounds, or at least 3000 pounds lighter than a wooden car with the same capacity. One of the features of these cars is the longitudinal hood, three feet in height and running the length of the car. The car is unloaded by long doors extending the length of the car on either side, and opening on the hood. In these long doors are smaller sliding doors, so that a point of delivery can be narrowed at will. These doors and the hood are a radical departure from the older style of coke cars, in which the hood extended across the width of the car with the unloading doors opening from it underneath, instead of at the side of the car, as in the new ones. The cars are made entirely of steel except the covered roof, which is so constructed that it is practically a series of doors designed to facilitate the loading of the cars. The new conveyor is a marked step forward in car construction. The design of the car permits of its use for coal and ore as well as the carrying of coke, for which it was especially built.

A cable dispatch from Paris reports a serious fire at the works of Schneider & Co., at Le Creusot, France, on April 31, which inflicted a loss of about \$200,000. The gun shops were saved.

The National Metal Trades Association.

Its Aims and Its Organization.

On various occasions we have referred to the organization and workings of the National Metal Trades Association. During the last few months this association has met with signal success, and the advantages offered to builders of machinery by this organization have been readily recognized by employers of labor. In August last a few gentlemen, representing concerns whose employees consisted principally of machinists, with pattern makers, boiler makers, blacksmiths and metal workers as contributaries, held a meeting for the purpose of discussing as to the advisability of forming an association similar to the Stove Founders' Defense Association and the National Founders' Association. These gentlemen had followed with much interest the success of these organizations and it appealed to them that it would be advisable if possible to organize on similar lines. At that time the pattern makers' strike was at its height. Immediately steps were taken to interest others outside of New York City, and as a result there was a large gathering of manufacturers at the Waldorf-Astoria Hotel last December, and the National Metal Trades Association was formed. At this first meeting of the organization 50 concerns signed the constitution and by-laws. Since then many others have become interested, and now the association has reached that point where its influence is actually being felt.

During the period of infancy of the new association two strikes have been defeated, which were instigated by the International Association of Machinists in the shops of the members of the association. The president of the Machinists' Union has asked for a conference with the officers of the new association in an endeavor to form an agreement similar to that now existing between the National Founders' Association and the Iron Molders' Union of North America. In reply the officers of the National Metal Trades Association stated that at the present no such agreement would be entered into, believing this to be a matter of such importance that it would be advisable to lay it before all the members of the association. This shall be done at the next annual meeting of the association, which will be held in May.

A circular letter sent to the members of the trade contains matter which throws light on the working of the National Metal Trades Association. The letter states:

The Circular Letter.

"There are certain facts which manufacturers cannot pass over without considering, and that is that labor is organized and daily being strengthened, and each month and year is growing more powerful, and it is but a question of a short time before a large majority of all the employees will be members of a union.

"The objects which are to be obtained by employees joining unions, as set forth by their organized delegates, is the amelioration of the condition of the workmen and their mental and moral improvement. The question is, how are these objects to be obtained? In answer to this would state that by forcing employers to recognize the union and the granting of shorter hours without reduction in wages, by enforcing a minimum rate of wages whereby the incompetent man is to be brought to the same standard as the competent man, by limiting the production of each man, whereby more will be employed, by the abolition of piece work and premium system, by insisting that employers may not employ non-union labor, by demanding that the agent of the union may have free access at any and all time to your shop. Classifying these all under one head, what is the result? That organized labor proposes to run and regulate your business to suit themselves.

"Statements are frequently made by employers that as they treat their men well, pay good wages and furnish comfortable accommodations, they are immune from any danger from the demands of organized labor, that in their respective establishment there is no organized labor. We, however, who have given this matter more thought know that these conditions do not exist; and furthermore, it would be impossible for any concern employing from 250 to 1000 hands to know whether a union existed or not. Experience in the past has shown that those who have felt most secure were the first ones to discover their mistake.

"The objects of our association are to induce firms, corporations, companies or individuals engaged in the manufacture or use of metal for which the employees are machinists, with pattern makers, blacksmiths, boiler makers, &c., to join together and endeavor to better the existing condition. Its purpose is set forth in the constitution by these words: 'The adoption of a uniform basis for just and equitable dealing between the members and their employees, whereby the interests of both

will be properly protected.' The investigation and adjustment by the proper officers of the association on any question arising between the members and their employees. The officers of this association consist of a president, first and second vice-presidents, secretary and treasurer. The country is divided into geographical districts, each district being in charge of a committee consisting of five. The officers of the association, with the chairman of each district committee, constitute the administrative council; all officers and district committees are elected annually in a State convention. Funds are divided into two separate items; first, the working fund derived by annual dues and the reserve fund derived by assessments on a basis of the number of employees.

"Assistance is afforded members,

"1. By arbitration, whereby efforts are made to settle grievances by the district committee, or, in case of failure, by the administrative council.

"2. In case of failure of both, by furnishing men to do the work, or by remuneration and by more secure means in case of emergency.

"3. By a natural feeling of respect by the labor element for the power of a combination of interests actuated by a common desire to maintain fair play, and to protect its constitutional rights.

"4. By a sense of relief by the ones engaged in the active management of a business from a knowledge that in the event of trouble they may have had at least the advice of persons most competent to give consideration to practicable problems of such character.

"5. By a restraining influence upon employees from a knowledge that their employer is a member of an organization which endeavors to protect his interests.

"We do not believe that any of the manufacturers of this country desire to experience a strike such as the British manufacturers had forced upon them three years ago by the labor union, and the only manner by which this question was settled was by manufacturers organizing; the result being the loss of millions of dollars—the approximate amount will never be known. It has been stated by those who were connected with the strike that had the manufacturers been thoroughly organized in the beginning the difficulty would never have occurred. Indications certainly point to the fact that similar conditions of affairs are imminent in this country. Why not accept the truth of the adage, In time of peace prepare for war?

"In order to show the respect which the National Founders' Association has commanded, we desire to illustrate an instance which occurred in Brooklyn. The molders in a certain shop, feeling that they had a just cause for a demand, made same upon their employers; the demand, however, was refused. The representative of the union called and ordered the men to strike; they put on their coats, and were about to leave the shop when, in the course of conversation, one of the employers stated that the question of this settlement would be left to the National Founders' Association, they being members. The union representative said that put a different aspect on the case, and ordered the men back to their places; and this matter was referred to the chairman of that district."

The Officers.

The officers, administrative council, district committees and members of the association are:

President, George D. Selden, Erie City Iron Works, Erie, Pa.

First vice-president, F. H. Stillman, Watson-Stillman Company, New York.

Second vice-president, Charles L. Newcomb, Deane Steam Pump Company, Holyoke, Mass.

Treasurer, H. N. Covell, Lidgerwood Mfg. Company, Brooklyn, N. Y.

Secretary, A. J. Caldwell, Henry R. Worthington, Brooklyn, N. Y.

Administrative Council.

Geo. D. Selden, chairman; F. H. Stillman, M. H. Barker, Geo. A. Watts, H. M. Leland, J. W. Gardner, Charles Allis, Ferd. Schwedtmann, H. N. Covell, Fred. F. Stockwell, Nathan B. Payne, J. A. Jeffrey, F. W. Pillsbury, H. F. Crandall, N. O. Nelson, W. H. Pfahler (honorary).

First District.

COMMITTEE.

M. H. Barker, chairman, American Tool & Machine Company, Boston, Mass.

Fred. F. Stockwell, vice-chairman, Barbour-Stockwell Company, Cambridge, Mass.

Charles L. Newcomb, Deane Steam Pump Company, Holyoke, Mass.

Geo. T. Coppins, Walworth Mfg. Company, Boston, Mass.

Charles R. Holman, Holyoke Machine Company, Worcester, Mass.

MEMBERS.

American Tool & Machine Company, Boston, Mass.; Barbour-Stockwell Company, Cambridge, Mass.; Deane Steam Pump Company, Holyoke, Mass.; Farrell Foundry & Machine Company, Ansonia, Conn.; Holyoke Machine Company, Worcester, Mass.; Walworth Mfg. Company, Boston, Mass.

Second District.

COMMITTEE.

Geo. A. Watts, chairman, Watts-Campbell Company, Newark, N. J.
Nathan B. Payne, vice-chairman, Payne Company, Elmira, N. Y.
Chas. D. Cooke, Cooke Locomotive & Machine Company, Paterson, N. J.
E. C. Lufkin, Snow Steam Pump Works, Buffalo, N. Y.
W. A. Porter, E. W. Bliss Company, Brooklyn, N. Y.

MEMBERS.

E. W. Bliss Company, Brooklyn, N. Y.; Ball & Wood Company, New York; Buffalo Forge Company, Buffalo, N. Y.; A. & F. Brown Company, New York; Cooke Locomotive Works, Paterson, N. J.; De La Vergne Refrigerating Machine Company, New York; Benjamin Eastwood Company, Paterson, N. J.; W. & A. Fletcher Company, Hoboken, N. J.; Garvin Machine Company, New York; Holly Mfg. Company, Lockport, N. Y.; Hewes & Phillips Iron Works, Newark, N. J.; Iroquois Iron Works, Buffalo, N. Y.; Lidgerwood Mfg. Company, Brooklyn, N. Y.; Lambert Hoisting Engine Company, Newark, N. J.; McNab & Harlin Mfg. Company, New York; Manning, Maxwell & Moore, New York; J. L. Mott Iron Works, New York; Niagara Machine & Tool Works, Buffalo, N. Y.; Payne Company, Elmira, N. Y.; Quintard Iron Works, New York; John Royle & Sons, Paterson, N. J.; Snow Steam Pump Works, Buffalo, N. Y.; A. B. See Mfg. Company, Brooklyn, N. Y.; Sprague Electric Company, New York; Watson-Stillman Company, New York; Watts-Campbell Company, Newark, N. J.; Henry R. Worthington, Brooklyn, N. Y.; Watson Machine Company, Paterson, N. J.; Wittman Bros., New York.

Third District.

MEMBERS.

Erie City Iron Works, Erie, Pa.

Fourth District.

COMMITTEE.

H. M. Leland, chairman, Leland & Faulconer Mfg. Company, Detroit, Mich.
J. A. Jeffrey, vice-chairman, Jeffrey Mfg. Company, Columbus, Ohio.
J. H. Webster, Variety Iron Works Company, Cleveland, Ohio.
Walter Laidlaw, Laidlaw-Dunn-Gordon Company, Cincinnati, Ohio.
H. M. Norris, Bickford Drill & Tool Company, Cincinnati, Ohio.

MEMBERS.

Bickford Drill & Tool Company, Cincinnati, Ohio; Jeffrey Mfg. Company, Columbus, Ohio; Laidlaw-Dunn-Gordon Company, Cincinnati, Ohio; Leland & Faulconer Mfg. Company, Detroit, Mich.; Variety Iron Works Company, Cleveland, Ohio.

Fifth District.

COMMITTEE.

J. W. Gardner, chairman, Gardner Governor Company, Quincy, Ill.
F. W. Pillsbury, vice-chairman, Fred. W. Wolf Company, Chicago, Ill.
W. M. Taylor, Chandler & Taylor Company, Indianapolis, Ind.
Jas. Barclay, Deere & Mansur Company, Moline, Ill.
H. W. Hoyt, Gates Iron Works, Chicago, Ill.

MEMBERS.

Chandler & Taylor Company, Indianapolis, Ind.; Deere & Mansur Company, Moline, Ill.; Goss Printing Press Company, Chicago; Gardner Governor Company, Quincy, Ill.; Gates Iron Works, Chicago; Fred. W. Wolf Company, Chicago; Webster Mfg. Company, Chicago; the Adams & Westlake Company, Chicago; the Plamondon Mfg. Company, Chicago; the Turner Brass Works, Chicago; the Chicago Screw Company, Chicago; F. C. Austin Mfg. Company, Harvey, Ill.; Chisholm, Boyd & White Company, Chicago; Whiting Foundry Equipment Company, Chicago; M. C. Bullock Mfg. Company, Chicago; the Pearson Machine Company, Chicago; Weir & Craig Mfg. Company, Chicago; Wm. R. Perrin & Co., Chicago; Robt. Tarrant, Chicago.

Sixth District.

COMMITTEE.

Charles Allis, chairman, Edward P. Allis Company, Milwaukee, Wis.
H. F. Crandall, vice-chairman, Milwaukee Harvester Company, Milwaukee, Wis.; John Peebles, J. I. Case Threshing Machine Company, Racine.

MEMBERS.

Edward P. Allis Company, Milwaukee; J. I. Case Threshing Machine Company, Racine, Wis.; Milwaukee Harvester Company, Milwaukee; Filer & Stowell Company, Milwaukee.

Seventh District.

COMMITTEE.

Ferd. Schwedtmann, chairman, Wagner Electric Mfg. Company, St. Louis, Mo.
N. O. Nelson, vice-chairman, N. O. Nelson Mfg. Company, St. Louis, Mo.
Geo. F. Steedman, Curtis & Co. Mfg. Company, St. Louis, Mo.
H. Krutsch, St. Louis Iron & Machine Company, St. Louis, Mo.
Geo. W. Fisher, Fulton Iron Works, St. Louis, Mo.

MEMBERS.

Curtis & Co. Mfg. Company, St. Louis; Fulton Iron Works, St. Louis; N. O. Nelson Mfg. Company, St. Louis; St. Louis Iron & Machine Company, St. Louis; Wagner Electric Mfg. Company, St. Louis.

National Tin Plate Company.

After several weeks of experimenting with a new process for the manufacture of tin plate, the National Tin Plate Company of Pittsburgh and Wheeling, W. Va., organized to develop a new method of making tin plate, have decided to go ahead with their plans, and will either build a plant of their own or make an arrangement with some other tin plate manufactories to make tin plate on a royalty process. At a meeting of the Board of Directors of the National Tin Plate Company, held in Pittsburgh on Friday, February 23, the following resolution was adopted unanimously: "That the National Tin Plate Company take steps to engage in the manufacture of tin plate under the Rodgers process, and to that end open negotiations with different iron plants now in existence, who have already solicited us to that end, as well as other plants; and, if such negotiations are not satisfactory to the committee, to prepare plans for a Bessemer plant of 400 tons daily capacity, and sheet and tin mills of sufficient capacity to consume that output of steel, and report at as early a date as possible to the Board of Directors." The committee appointed to prosecute the company's plans consists of A. V. Dally, Jr., N. E. Whitaker, president of the Whitaker Iron Works, and W. E. Tustin of Pittsburgh. It is understood that negotiations are pending between the National Tin Plate Company and several other concerns, with a view of having these concerns adopt the process, but up to this time the deal has not been closed. It is not improbable that the National Tin Plate Company may erect their own plant, and should this be done it is probable it will be located in the Pittsburgh district.

A fire on the 25th ult. destroyed the building at 51 to 55 South Jefferson street, Chicago, occupied by a number of manufacturing establishments. The occupants and their losses are stated as follows: Lambert & Mann, machinery, \$5000; William W. Vernon, gas machinery, \$3000; James Barry & Co., pattern makers, \$1000; Hartley Electrical Company, \$5000; George H. Nye, pump manufacturer, \$6000; Charles B. Sandham, pattern maker, \$5000; W. A. Jones Foundry & Machine Company, foundry, \$5000. The building and most of the contents were insured.

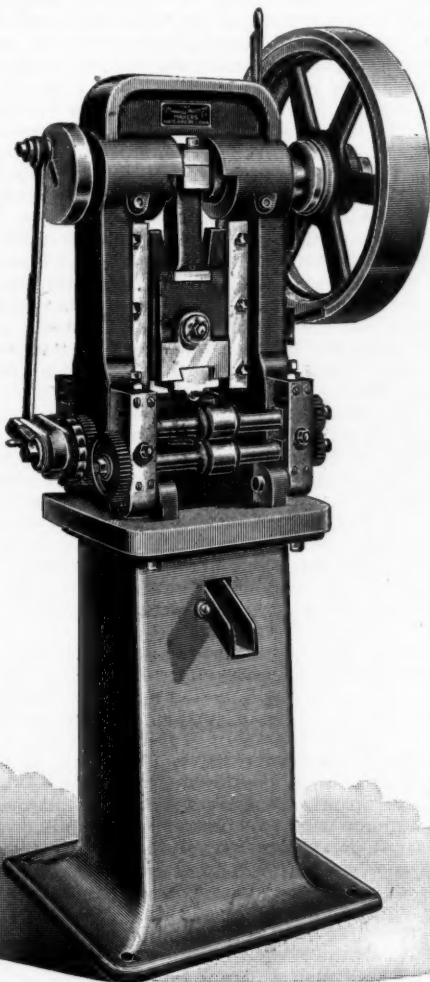
Papers have been passed for realty worth about \$660,000 in the deal of the Monongahela River Consolidated Coal & Coke Company, property involved being located along the third pool of the Monongahela River. The tract contains about 6300 acres, fronting on the river about three miles at Charleroi and extending back about 6 miles to a new railroad. The price paid is \$200 an acre, and 600 acres of surface are included in the deal.

Advices from Ishpeming, Mich., under date of March 3 state that a rise of pay amounting to 15 cents a day and affecting 5000 employees has been announced by the mining companies of that vicinity. This brings wages above any point in the past history of that region.

Special Coin Machinery.

From among the several machines furnished to the mint of Costa Rica, we are enabled to illustrate two, which are the product of the E. J. Manville Machine Company of Waterbury, Conn. The first is a special power press of the pillar pattern, so modified as to adapt it to the particular use of cutting the disks or blanks for coins. Some blanks are cut singly, but coins the size of our 10 and 25 cent pieces may be cut two at each stroke. The manner of adjusting the punch down to compensate for grinding, &c., is unique and efficient. A cylindrical wedge passes through the gate from front to back, and is adjustable by nuts. The hardened steel plunger which supports the blanking punches rests against this wedge and is moved by it.

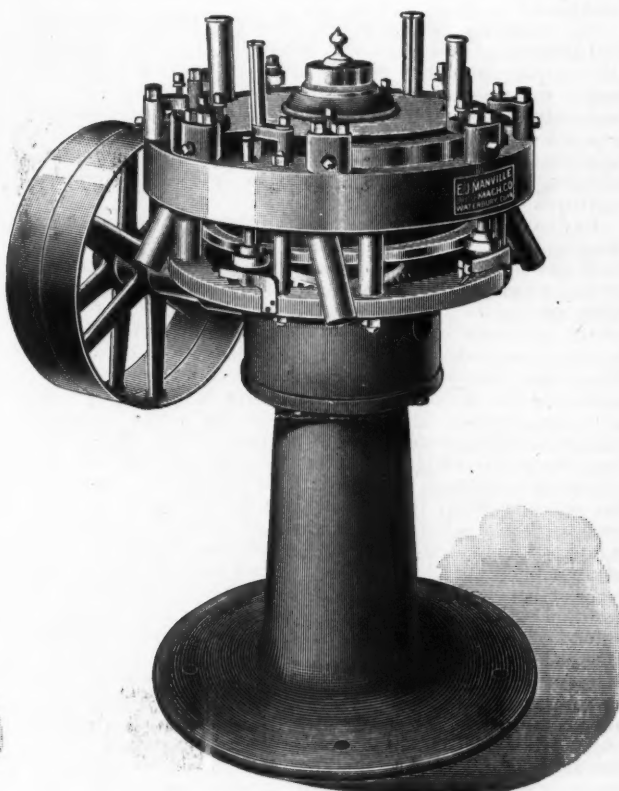
Roll feeds are arranged at both back and front, so that the strips of metal may be worked up economically



Coin Blanking Press.

quantity of blanks into the proper tubes. In practice, only one size coin is milled at a time, and having the four readily accessible is merely a convenience, and enables the operator to keep the tools set on different sizes and ready for immediate use. This machine will mill from 150 to 200 coins of one size per minute.

The Seaboard Steel Casting Company.—An application has been made for a charter for the Seaboard Steel Casting Company, with a capitalization of \$500,000. A tract has been purchased on the river front, in the city of Chester, Pa. The property is about 900 x 700 feet, and the latter dimension will be extended by dumping of refuse and material from excavations into the river. Both the Pennsylvania Railroad and the Philadelphia & Reading Railway pass the property, and will be available for shipping. The ground at this point is hard gravel, doing away with the necessity of piling for foundations. The company will build a large foundry, 560 feet in length, containing two open hearth furnaces of 20 tons capacity each, and with the most modern appliances. A machine shop of large size will also be built to finish castings for parties desiring it. The president of the company will be William C. Sproul, who was until recently vice-president of Roach's shipyard, and the general superintendent will be Mirabeau Sims, who was



Coin Miller.

SPECIAL COIN MACHINERY.

from end to end. The roll frames are pivoted, and may be swung down out of the way while the tools are being adjusted. This is the form of machine adopted by our Government of late years, and in contrast with that formerly used shows a marked advance.

The other machine illustrated performs the succeeding operation of coin blanks, that of milling the edges. Now this does not mean, as is so frequently understood, the knurling or marking seen on the edges of a finished coin. That is made during the process of coining. This milling machine is used to slightly round the edge and thicken it by throwing up a burr, thus slightly reducing the diameter of the blank, which not only permits it to drop freely into the coining die, but also prepares the edge, so that when coined the rim will stand slightly above the central portion, thus protecting the design from wear.

The construction and action of the machine are comparatively simple. A central revolving disk carries a ring having four grooves. Surrounding this disk are four segmental concave dies, each having a groove to correspond in height to one of those in the disk. Four vertical feeding tubes are shown, one for supplying work to each die. A feeder is arranged at the base of each tube, so that the operator has merely to drop a

for a long time with the Penn Steel Casting & Machine Company, and has latterly been foundry superintendent for the General Electric Company, at Lynn, Mass., and for the Sargent Works, at New Haven, Conn. It is understood that a number of very prominent shipbuilding, railroad and machine building people are interested in the new Seaboard Company. Mr. Sims is a son-in-law of Frederick Baldt, and served a long apprenticeship under him at the American and Penn steel casting plants.

The report that F. T. F. Lovejoy, ex-secretary of the Carnegie Steel Company; Henry Phipps, John Walker and H. C. Frick would organize a company to engage in the manufacture of car axles and car forgings on a large scale, is entirely without foundation. We can state that Mr. Frick has not made any business plans for the future, and will not until the litigation with the Carnegie Steel Company has been settled.

The capital stock of the Cutler Hammer Mfg. Company of Milwaukee, Wis., makers of rheostats, has been increased to \$150,000.

The Federal Industrial Commission.

A Review of the Evidence of the Iron Makers.

WASHINGTON, D. C., March 6, 1900.—The Industrial Commission on the 1st inst. transmitted to Congress its report, of which a synopsis was presented last week in *The Iron Age*. The report was accompanied by the testimony taken, a topical digest and a review of the evidence. This review, which might have formed an integral part of the report proper, though intended to be a strictly impartial comparison of statements pro and con concerning the chief phases of trusts, combinations and monopolies, discloses clearly the relative weight given by the Commission to the statements of the several witnesses and therefore presents some interesting conclusions to which point is given by significant comment. The testimony of the representatives of the leading iron and steel combinations is given a prominent place in this review, and is analyzed distinctly to the advantage of these concerns as compared with other so-called trusts investigated by the Commission. The extracts given below cover the features of the review relating to the American Tin Plate Company, National Steel Company, American Steel Hoop Company, Federal Steel Company, American Steel & Wire Company and the National Shear Company.

"Among the causes which have led to the formation of industrial combinations," says the report, "competition so vigorous that profits of all competing establishments were destroyed is to be given first place. One or two witnesses simply mention the higher profits wanted or some like ambition, as when Chairman Gates asserts that the American Steel & Wire Company were formed because their organizers wished to be the wire manufacturers of the world."

In discussing the form of organization of the principal combinations, the report says: "The form of organization that seems most common at the present time is that of the single large corporation, who own outright the different plants. A combination of this kind is formed by the purchase of all of the plants of the different corporations or individuals who enter into it, the corporations then dissolving as separate corporations. Often payments for the plants are made largely in stock of the new corporation, so that many of the former owners maintain their interest in the business. The affairs are then managed entirely by the stockholders of the one corporation through their Board of Directors, elected in the ordinary way. It is usual for these larger corporations to choose a very liberal form of charter. A form of organization, which is in many particulars quite like the original trust form, is that which has been taken by the Federal Steel Company, by the Distilling Company of America and others. In this form the central company, instead of purchasing the plants of the different corporations which it is proposed to unite, simply buy a majority of the stock, or possibly the entire stock of each one of the corporations. The separate corporations keep in separate corporate existence, but a majority of the stock being held by the one larger corporation, their officers, of course, elect the boards of directors of all of the separate corporations, and in this way hold ultimately complete control. It is usually true that the separate corporations manage their own affairs practically independently, although they are furnished information regarding the workings of the other establishments in the combination through the central officers, and are doubtless largely directed in their policy in this way."

Referring to the advantages for large corporations offered by the laws of New Jersey, the low rate of taxation is cited:

"Perhaps a greater advantage," continues the report, "is to be found in the liberal form of the New Jersey charter. The amount of capital is unlimited, the period of organization is unlimited, the amount of the indebtedness is not limited, the powers that are granted to corporations are also practically unlimited, with the exception that an ordinary business corporation is forbidden to engage in banking. The Federal Steel Company would have found it impossible to organize for the purpose of engaging in the various enterprises which they have undertaken had they incorporated in the State of Illinois or of Pennsylvania. The same thing holds also with reference to the American Steel & Wire Company."

Capitalization.

Concerning the evil of overcapitalization the report says: "Perhaps the clearest testimony on this subject of capitalization came from the witnesses connected with some of the iron and steel companies. The witnesses regarding the tin plate combination were in substantial agreement in stating that the owners of most of the plants gave an option on their plants at what they con-

sidered was a fair cash value, although, owing to the good times and to the fact that in many cases the industries were quite prosperous, the prices were high. They were then given, by the promoter, the option of taking this valuation of their property in cash or of taking instead the same amount in preferred stock, with a like amount of common stock added as bonus. The witnesses who appeared before the Commission had chosen to take stock instead of cash, believing that the business could carry that capitalization, and the price of stock on the market shows that the common and preferred together have so far ranged above the cash valuation.

"One of the witnesses, at least, conceded that the total amount of stock thus paid for the plants, since the cash option was taken in prosperous times and included not merely the value of the plant but also the good will of the running business, probably amounted in some instances to three or four or even five times the cash cost of the plants at that time. Owing, however, to the greatly increased value of material and the increased wages of labor, some of the witnesses were of the opinion that the preferred stock alone of the tin plate company would probably not equal the cost of production of their plants at the present time.

"Exactly the same system seems to have been followed in the capitalization of the National Biscuit Company, the National Steel Company and the American Steel Hoop Company. In all these cases there was a clear understanding that the common stock represented simply bonus or anticipated profits. The fact that the cash options taken on the plants included also in the minds of the sellers the good will, and were presumably at a fairly high price, considering the prosperous times and the added advantage which was expected to be obtained from the combination itself, would seem to show that the capitalization, including both preferred and common stock, was considerably more than double the cost of reproducing the plants themselves.

"In the case of the American Tin Plate Company there was also added \$10,000,000 of common stock, which was issued to the promoter for his services and for the cost of organization. It is presumed, of course, that not a little of this \$10,000,000 had to be paid out in commissions, &c., to those who aided in securing the required amount of capital, including cash furnished for working capital. The amount of extra common stock issued for purposes of promotion in the American Steel Hoop Company and the National Steel Company was \$5,000,000 in each case.

"In all these cases the capital seems not to have been beyond the earning capacity during the prosperous times of the last year, the question again arising as to whether the prices have been pushed beyond normal rates in order to pay dividends on watered stock.

"The International Silver Company, according to the testimony of their president, have from 45 to 50 per cent. of their capitalization represented by plants, machinery, merchandise, &c., and the rest by brands or 'good will'.

"Mr. Gates, president of the American Steel & Wire Company, estimates that of their \$80,000,000 of capital stock some \$10,000,000 to \$15,000,000 are considered good will, the rest plants and material. It is to be noted, however, that the valuation of the plants given by Mr. Gates is based on the great increase in cost of all iron material for the last year and not on the value at the time the organization was capitalized. Forty million dollars would come more nearly the cash value at the time, 1897-98, when Mr. Morgan's estimate was made of \$28,000,000 for some 70 per cent. of the value of all the plants.

"The National Shear Company were clearly capitalized at far beyond their cash value. Mr. Wiss was of the opinion that the stock issued was five times more than the cash value of the plants, and the fact that the stock was practically unsalable would seem to justify his conclusion, even though there were difficulties in connection with the management of the establishments which would tend to lower the value of the stock.

Promoters' Profits.

"As was intimated above, one of the chief causes of this overcapitalization comes from the high profits that are secured by the promoters and by the underwriters of the stock when the combinations are made. Mention has just been made of the \$10,000,000 of common stock paid to the promoter of the American Tin Plate Company, and of the \$5,000,000 paid in each case to the promoter of the National Steel Company and of the American Steel Hoop Company."

As to promoters' profits, the report says: "Mr. Pearson, who acted as banker for the National Shear Company, testified that he was to receive \$30,000 in preferred stock and \$225,000 in common stock for discounting the notes of the company to the amount of \$200,000 and continue this rediscounting for a period of 18 months. In case he withdrew from his bargain after nine months

he was to receive a little less than half. Being dissatisfied with the way the company were doing business, at the end of nine months he withdrew from this arrangement. The stock due him in accordance with the contract had not yet been paid when he testified. This combination seems practically to have been organized on borrowed money, even in part for payments for plants. The liberality of the organization with the banker was clearly brought out. The profits of the promoters did not appear from the testimony.

"According to the testimony of Mr. Gary, the Federal Steel Company were capitalized at almost precisely the actual value of the plants, estimated by a Board of Appraisers, together with the actual cash put in. Considerable has been allowed for increased value of lands and, of course, the exact basis of the appraisal did not appear. He testified also that J. P. Morgan & Co., the bankers who effected the exchange of the stocks of the constituent companies for that of the Federal Steel Company, received some \$200,000 for their services. He admitted, however, that before this arrangement was made by J. P. Morgan & Co. for the syndicate that was organizing the Federal Steel Company J. P. Morgan & Co. already controlled a majority of the stock of all the constituent companies. The price paid by them for this stock did not appear, so that their real profits are not clearly in evidence.

"On the whole, from the testimony given before the Commission, the inference seems a fair one that the capitalization of these combinations is usually a sum considerably above the value of the plants, together with patents, but exclusive of brands and good will of the companies that enter into the combination."

In discussing the relative cost of raw material, the report says: "In the case of the American Tin Plate Company it was said that owing to the fact they were very large buyers of steel they could at times get contracts at better rates than smaller buyers, although apparently they could not get any better rates than several other large buyers of steel doing different classes of business. Especially, however, does the fact that the directors of the American Tin Plate Company are in large part the same as the directors of the National Steel Company, that the business conditions of each are known to the other and that their interests are closely allied, enable the tin plate company at times to secure rather better rates from the National Steel Company than would be given by that company to an outsider. Similar statements are made regarding the American Steel Hoop Company, who are similarly associated with the National Steel Company."

Effect on Prices.

As to the effect on prices of the efforts of the various combinations to control the output in their special branches, the report says: "Several of the combinations, as appears from the testimony of their officers, control a large proportion of the entire output of the country. The American Tin Plate Company were probably, at the time when their representatives appeared, controlling something more than 90 per cent. The whisky combination have controlled at times as high as 95 per cent. of the production of spirits, and have probably during most of the time for the past 12 years controlled more than 80 per cent. of the output. Most of the iron and steel companies claim, on the other hand, that they make no attempt to control so large a percentage of the output and that they make no approach to monopolistic power, but secure their advantages by bringing together different branches of the industry which insures them a steady supply of raw material, or, on the other hand, a sure customer for part of the product. Thus the Federal Steel Company control possibly some 30 per cent. of the output of their main products, and carry the processes from the mines to the finished product. The National Steel Company control about 18 per cent., and they also operate mines, fleets and mills. In the case of the American Steel & Wire Company, however, the combination at the time of the testimony was selling from 75 to 80 per cent. of the total output of steel rods, the same percentage of smooth wire and 65 to 90 per cent. of wire nails. Moreover, the American Steel & Wire Company have practically a monopoly of barbed wire and woven wire fencing through the patents which they hold, and not merely by virtue of their large capital. With the exception of the monopoly secured through these patents Mr. Gates, chairman of the company, thinks they do not control competition.

"The officials of the American Tin Plate Company recognize that their price is to be considered the American price, although they, with all of the other representatives of combinations, deny that they possess a monopoly, and show that there are some competitors in the field. The company fix the price, which their competitors in the main follow, but their officers realize that if they push their profits too high they will simply call in

competitors to so great an extent that it will hurt their own business and prevent their control of the conditions. The same argument is presented in general terms by several witnesses regarding the control over prices by the combinations.

"In some cases, notably in the iron and steel and allied industries, there has been within the last year or two an almost marvelous increase in the demand for products of all kinds. In consequence prices have advanced very rapidly. While it is probably true that the combinations have been able to seize the advantages of the situation better than could smaller manufacturers, there can be no doubt that the main increase in price has come from the most unusual demand. Mr. Gates testified that in his judgment the new output of steel cars, steel vessels and steel frames for buildings and bridges constituted as large a tonnage as the total tonnage of the United States in iron and steel 15 or 20 years ago. All the witnesses in those lines seemed to agree as to the increase in demand and as to the fact that it, with the corresponding increase in price of basic materials, was the chief cause of the increase in price of finished product. Hardly any of the companies could meet present demand and all were taking contracts for months ahead.

"The fact, however, that in the main the great combinations fix the prices and their competitors follow would seem to show a certain element of monopoly. When they make a cut in the price the others must follow, and their action is substantially an arbitrary one. They, on the other hand, having so large a control of the market, need not follow the cut of a competitor in a comparatively small market, although, of course, they cannot permit the competitor to widen his market materially, provided they wish to hold the control. So, on the other hand, this monopolistic element is shown by the fact that the increased price fixed at any time by a combination must be taken, at least temporarily, by most consumers, since the combination is, substantially, at the moment the chief source of supply, its competitors being utterly unable to meet the needs of the market. This is true in spite of the fact that if the prices are made unreasonably high competitors would, in the long run, deprive the combination of its trade."

The outlook for the export trade is referred to as follows: "Mr. Guthrie, president of the American Steel Hoop Company, believes that, owing to our superior natural advantages, under ordinary circumstances it would even now be possible for a large part of our product to be sent abroad. At the present time comparatively little is exported owing to the enormous home demand, but he believes that we have the opportunities and facilities for manufacture which should enable us to export quantities. At the same time the large capital of the combinations makes it possible to employ agents all over the world and to spend large sums pioneering. A similar opinion was expressed by Mr. Gates, chairman of the American Steel & Wire Company."

The Tariff.

An important feature of the review relates to the effect of the tariff on the leading combinations in the iron and steel trade as follows:

"Judge Gary, president of the Federal Steel Company, while admitting that protection may sometimes perhaps permit monopolistic prices, does not think the plan of reducing it by Executive order practicable. That would injure firms and individuals outside the combination. It would be justifiable only in case the combination were distinctly illegal and in the event the present laws are sufficient to suppress the monopoly. He believes that some tariff is still needed for the proper protection of the various steel industries, and does not believe that at the present time there is any monopoly in them.

"President Reis of the National Steel Company does not believe that the tariff has had much effect on the iron and steel business during later years, and thinks that so far as his especial branch of the industry goes the tariff would not be needed, though he concedes that in the other branches, perhaps, such as the manufacture of steel rods and black plates for tinning, it may still be needed.

"President Guthrie of the American Steel Hoop Company thinks that without the present tariff on steel his company could not compete, for example, in Galveston, Texas, on account of the extremely low freight rates from abroad. Protection is needed, in his judgment, to offset transportation rates, even though we have at the present time, and are likely to have still more in the near future, the possibility of exporting American steel.

"Chairman Gates of the American Steel & Wire Company believes also that the tariff is needed in order to enable us to pay transportation rates. It is still more needed because, as he asserts, the Germans get a subsidy on steel exported and are doing all they can to push their export business.

"Regarding the tariff on tin plate, there seems to be no difference of opinion among the witnesses. Mr. Graham testifies that there would have been no tin plate industry had it not been for the tariff. Mr. Reid says also that the industry was created by the tariff, and that while the tariff at present gives efficient protection, the removal of the duty would destroy the industry. He believes, however, that at the time he testified the price of tin plate might go 50 cents a box higher before it would meet with effective competition from abroad. Mr. Taylor, an independent dipper of tin plates, is inclined to the same opinion, while Mr. Griffiths, perhaps the most active opponent of the combination, testifies that the tariff is in no sense the father of the combination further than that the entire industry was created by the tariff. He also does not believe that the industry at the present time could exist without it, and thinks that certainly few, if any, would be bold enough to attempt to carry on the business without it."

No evidence was adduced showing that freight discriminations have ever assisted the iron and steel combinations to control their trade.

The Effect on Labor.

With regard to the effect of the combinations on labor, the report says: "Mr. Gates of the American Steel & Wire Company testified that they had dispensed with the services of all but 15 or 20 out of 200 or 300 traveling men, as well as with those of about 50 per cent. of their high priced men—superintendents, officers, &c."

"The officers of several of the large combinations, particularly those in the iron and steel industries, testified that there had been no lessening, but rather, owing to the great demand for the product, with the consequent enlarged output, a decided increase of the number of laborers employed in the ordinary branches of the business. On the other hand, the services of presidents, superintendents and other high officials of the individual plants had been dispensed with when the combination was formed. Judge Gary, president of the Federal Steel Company, testified to this saving, as did also Chairman Gates of the American Steel & Wire Company, President Guthrie of the American Steel Hoop Company and others."

"On the other hand, these men state that in the steel manufacture and its allied industries there has been a very decided increase, both in the number of men employed and in the rates of wages, since the formation of these corporations. For example, the Tin Plate Company have advanced the wages of their employees from 15 to 20 per cent. upward, some few of the men receiving advances as high as 50 per cent. Mr. Reid furnished details of wages for some years tending to confirm his statements. In the National Steel Company wages have advanced from 15 to 20 per cent., while the American Steel & Wire Company have advanced wages, on the average, perhaps 40 per cent., and are employing from 30 to 40 per cent. more labor."

"In the Federal Steel Company also there has been an average increase of some 11 per cent., common labor being advanced about 16 per cent., while high officers and clerks at headquarters have had their pay lessened more than 6 per cent. President Gary furnished a table showing advances in wages in the different classes of employment, as well as the increased number employed. The American Steel Hoop Company had also advanced wages from 15 to 25 per cent. It should be remembered, in connection with all of these steel companies, that there has been a very decided improvement in business during the last year or two, and prices as well as wages have therefore gone up enormously. Part of the increase in certain cases is, in fact, to be explained by the operation of the sliding scale system, although the base prices of the scales have also been advanced."

Mr. Griffiths, while recognizing that there has been an advance of wages by the American Tin Plate Company, testified that the feeling among the laborers was not at all in favor of the combination. While the workmen knew that there had been some increase in their wages, they felt that, on the whole, they were more within the power of their employers than before. Some of the plants were closed down, for a time at least, early in the winter of 1899-1900, and the men believed that the formation of the combination would help the employers in an attempt to lower wages in 1900. He based these statements largely on a letter from one of the workmen employed by the American Tin Plate Company. Mr. Greer, the district superintendent of the American Tin Plate Company for the New Castle district, explained the reasons for the closing of the plants temporarily and denied generally the statements of Mr. Griffiths."

"The opinion was general that when plants were closed in any industry there might and probably would be at least a temporary displacement of labor, though

in many cases men would be simply transferred to other establishments."

Labor Organizations.

"Nearly all of the combinations whose representatives appeared before the Commission manifest no hostility to labor organizations, but are, on the whole, inclined to favor them. As has been said, the Standard Oil Company believe in trade unions. The National Steel Company, the American Steel Hoop Company, the American Tin Plate Company and the Federal Steel Company all employ union labor largely, although not exclusively. They deal regularly with the Amalgamated Association of Iron, Steel and Tin Workers, and pay, as a rule, to the non-union men wages that are substantially based upon the Amalgamated scale."

"Chairman Gates of the American Steel and Wire Company asserted that his company did not recognize union labor as such, although they employ large numbers of men belonging to the Amalgamated Association. The various employers meet with committees of the men to agree upon rates of wages, but do not deal with the unions as such. In all of their establishments they expect to pay good rates; those which prevail in the locality for those grades of labor."

"The testimony is practically universal that the combinations have had little or no trouble in the way of strikes, although Mr. Griffiths testifies as regards the tin plate workers that they have been dissatisfied and that there has been some tendency at least toward strikes."

Advantages.

In summarizing the advantages of large industrial combinations over the system of production on a smaller scale by competing plants, the review concedes that moderate gains are made:

1. By concentration of plants in most favorable locations.
2. By saving in freights through shipments to customers from the nearest plants.
3. The use in combination of all the patents, trademarks and brands owned by the constituent companies.
4. The saving in company's expenses due to single management.
5. The concentration of the skill of the ablest superintendents of the constituent plants for the benefit of the entire combination.
6. The development of the export trade, which is only possible through the control of large capital.

Evils.

The evils are considered to be:

1. The discharge of many employees, resulting from the combination of the constituent companies.
2. Arbitrary methods of competition which give the most powerful combinations great advantage over small competitors.
3. The raising of prices where the combinations control practical monopolies.
4. Speculation and overcapitalization.
5. Freight discriminations secured by large corporations.
6. The bad social effects growing out of monopolistic methods, detracting from the individual initiative of business men and preventing the younger men from going into business independently.

Remedies.

Under the general head of remedies that have been suggested by the witnesses the review analyzes:

1. The "let alone" policy.
2. Direct suppression of monopolistic combinations by State and Federal laws.
3. The prohibition of destructive competition.
4. Publicity concerning the affairs of combinations.
5. State Legislation.
6. Federal Legislation.

The suggestions for State legislation cover laws confining corporations strictly to the lines of business for which their charters are issued; strict inspection of the operations of corporations; the prohibition of combinations where monopolistic intent can be shown, and the regulation by the States of foreign corporations doing business within their limits. The lines of Federal legislation suggested are as follows:

Federal Legislation.

"a. Creation of Federal Corporations Under Strict Federal Laws.—Some would favor incorporation under Federal laws only in case of very large corporations, while from the legal standpoint some others would fix the distinction between State and Federal corporations along the lines of commerce within the States as distinguished from interstate commerce. The representatives of combinations favoring such Federal laws consider that one of their chief advantages would be to prevent

unwarranted interference with the business of the corporations by individual States. Some of the witnesses, however, consider that the creation of Federal corporations would be harmful as well as unconstitutional.

"b. In connection with Federal incorporation, or apart from it, certain witnesses favor a considerable degree of regulation of corporations on the part of the Federal Government. In this connection publicity, through reports and inspection, is advocated. A Bureau of Industry is suggested by one witness, having powers somewhat similar to those of the Interstate Commerce Commission. The reports to be made to this body should be of such a nature as to disclose the condition of the business of the corporation, especially as to whether they possessed or were likely to acquire a monopoly or not.

"c. *Strengthen Interstate Commerce Commission.*—Some of the witnesses complain of the inefficiency of the Interstate Commerce Commission. Others urge that it be given greater power, even judicial power, and that pooling among railroads be permitted under its supervision. Especially is it recommended in the testimony taken before the Subcommittee on Transportation that its hands be strengthened by giving it power of audit of railway accounts, power of enforcing its decisions, &c., it being urged that in this way freight discrimination in favor of the large shippers, the combinations, could be prevented.

"d. Two witnesses are inclined to the opinion that unless Congress in some way assumes full control of corporations the United States Government should remove, by specific act of Congress, the limitations which now are likely to be laid by the courts, on the basis of the Federal Constitution, upon the powers of the States over monopolistic combinations, so far as their interstate business is concerned. It was thought, on the whole, that such an act of Congress would probably be upheld as constitutional by the courts.

"e. *Removal or Lowering of Tariff.*—Several of the witnesses, though objecting in the main to the principle of a protective tariff, were of the opinion that in some cases the tariff encouraged or even, as one said, was the chief cause of the trust. In such cases they thought it should be lowered or abolished. Mr. Havemeyer expressed himself most strongly in favor of a low horizontal tariff of not over 10 per cent., while Mr. Buynitsky proposed that if there were shown to be a monopoly in any protected industry the President might be empowered to lower the tariff on the products of that industry, by executive order, not more than 20 per cent. nor for a longer period than five years.

"f. *Powers of Congress.*—Much discussion was presented before the Commission as to the constitutional powers of Congress to enact legislation along any of the lines above suggested. It is admitted that Congress has exclusive control over interstate commerce, and the preponderance of opinion seems to be that it has power to create corporations to carry on such commerce, although this is disputed. Congress is admitted to have no power over purely manufacturing corporations not engaged in interstate business. There is much doubt, however, as to the precise line where business ceases to be domestic and becomes interstate. Professor Huffcut, at least, is inclined to think that the courts, even under the present Constitution, would uphold quite general control over the general business of corporations carrying on a widespread business among the several States, on the ground that a large portion, at least, of that business—perhaps most of it—is interstate in character. The control of that would practically control all. In this connection this witness suggests that Congress could probably constitutionally compel such large corporations to submit to Federal legislation, and perhaps to incorporate under Federal laws, by one of the three following methods:

"a. By forbidding the use of the mails to State corporations engaged in interstate commerce, especially so far as they are shown to be monopolistic and therefore subject to the police power.

"b. By levying a practically prohibitive tax upon State corporations engaged in interstate commerce, as has been done with note issues of State banks. Other witnesses suggest that the Government can acquire jurisdiction, in order to compel reports and publicity, by imposing taxes, and some are inclined to suggest that these taxes should be made progressive.

"c. By directly prohibiting State corporations from engaging in interstate commerce."

W. L. C.

Information Wanted.—Who manufactures spring or clock motors?

The Cleveland City Forge & Iron Company, Cleveland, Ohio, are just completing for shipment one of the largest shafts ever sent out from the country. It is 25 feet long and from 26 to 37 inches in diameter and weighs 35 tons. The shaft is for the use of the Glasgow Street Railway Company of Glasgow, Scotland.

Lake Iron Ore Matters.

DULUTH, MINN., March 3, 1900.—Just why vessel agents and iron ore men of the East are expecting Lake navigation to open at an unusually early date is uncertain here. Certainly there is no good reason for such expectation, as viewed from the present weather and ice conditions on Lake Superior. There are many boats at upper lake ports that will try and move at the earliest moment, and the high freights prevailing will be an incentive for those at the lower lakes to start quickly, but it is doubtful if much ore is moved earlier than usual. While ore shippers seem to be still in the market for vessels at the rate established last fall—\$1.25 a ton—it does not look as if there was to be very much of a grain movement from the west end of Lake Superior the early part of 1900. While it is estimated by high railway officials that 40 per cent. of last fall's crop in the Northwest is still in farmers' hands, the all rail routes are making such inducements and are moving such a vast tonnage from Chicago that lake grain traffic is likely to be curtailed. This does not argue that there will be a surplus of ships, for the increase in ore, coal, lumber and general merchandise, and the absorption of tonnage by the opening of the longer route to Montreal, will take up the new carriers. Some of the most recent charters of ships for the season are evidently figured on a basis higher than \$1.25 a ton on ore from the head of Lake Superior, and it is very apparent, as indicated in this correspondence last fall, that the rate established then was not higher than the situation warranted.

The Spruce and Cloquet Mines.

An important deal is being closed on the Mesaba range that is surprising and interesting from several points of view. It is the purchase of the lease of the Spruce mine, at Eveleth, from P. L. Kimberly by National Steel interests. It is surprising in that it is based practically on nothing more than the explorations made a year or more ago by a Duluth explorer, D. T. Adams, and is an eloquent tribute to his reputation. It is also surprising in that it is for the sum of \$1,100,000, which means a charge against the ore in the ground of not less than 60 cents a ton. There are proved up in this mine about 7,000,000 tons of a fine grade Bessemer ore, and there is a royalty against the ore of 25 cents a ton for the coming three years and 30 cents for the remaining 47 years of the lease. This royalty, with the bonus and interest on the latter for any minimum period in which it is possible for the ore to be mined out, will make 60 cents, probably more, per ton. Included in the deal is the Cloquet mine, adjoining the Spruce, but of its ore body nothing definite is known, either as to extent or quality. Mr. Kimberly paid for the Spruce about nine months ago a bonus of \$80,000, and has since then begun sinking a shaft for opening the mine. He secured the lease of Cloquet without bonus. His shaft in the Spruce is now in the ore, but the source of all practical information as to the value and extent of the mine must be from Mr. Adams' drill cores and statements. This sale is interesting, also, in that it calls attention to the great difference in value of Mesaba ores of similar chemical character. Ores of this Eveleth group, for instance, are selling in the market to-day for 40 cents a ton more than those of some other portions of the Mesaba, even though both are of about the same chemical value. It is a fact that a furnaceman can as well afford to pay 50 cents a ton for some Mesaba ores as to take some others that assay equally well for nothing. This Spruce deal represents, without doubt, the highest price ever paid for ore in the ground in the Lake Superior country, and there is likely to be a higher charge against this mine for pumping than at any other point on the Mesaba range, with one exception.

Another deal of magnitude is under way on the same range, it being an option on 120 acres near the Franklin mine for \$1,500,000. But this is fee land, and there is a hole down more than 100 feet in what is considered about the finest ore on the Mesaba range. Some 2000 feet north from this property a lease at 30 cents a ton has been secured by what has been incorporated the past week as the Fay Iron Company, and sinking has begun. It is expected that considerable ore will be mined this year from this latter property, which consists also of 120 acres. A fine grade has been shown here, somewhat similar to that last mentioned.

There is the usual interest in exploration on this range, and the customary legal tangles are coming to the surface about several properties that have been shown to be of value. Six drills are now at work for the Chandler Iron Company on the east side of T 58, R 20, where the company have a large tract under option. Close to this a sale has just been made from C. D'Autremont and others to one of the operating companies for a large sum.

It is stated that the Chandler mine, Vermillion range, has sold ore for the coming season that nets it 150 per cent. on its capital stock of \$1,000,000, and the stock of this company has advanced to a bid price of \$72 a share

par value \$25, and this although the life of the mine is limited to a few years. Of the stock of this company 51 per cent. is in the hands of the Federal Steel Company.

Two large ore crushers are being installed at mines on old ranges, one at Michigamme and the other at Bristol, Menominee range. The latter is a Gates; the former has already been described.

On the old Gogebic the old Iron Belt has sold 100,000 tons of ore for this year's delivery at excellent prices, and the indications are that the mine will shortly be a better property than ever. It was abandoned some time ago, and then extensive explorations were carried on in the hope of finding something.

On the Marquette range unwatering has begun at the Riverside, of the Oliver Company, and will begin at the Billy, near Dexter, soon. An exploring shaft is being sunk by the Lake Angeline Company on their land near the old Mitchell mine, the Winthrop. In this region this company possess many millions of tons of siliceous ores that they have not entered upon as yet. At the Princeton mine the output this year will probably be 50 per cent. larger than last season, and they have recently opened into a deposit of fine blue ore that promises well.

On the Menominee range, at Crystal Falls, a drill sunk 500 feet for the American Mining Company on the Kimball property has found fine clean ore, in quantity, apparently. Indications that ore is present have been met with on some of the Hennepin Iron Company lands, and exploring is going on there. New machinery plants are being put in at Loretto, Lincoln and Mansfield. The East Vulcan is being unwatered. The Cundy is shipping about 500 tons daily to South Chicago.

Plans of the Chicago, Milwaukee & St. Paul Railway in connection with Menominee traffic have been decided on, and the intimation made in this correspondence some weeks ago to the effect that they would become an important factor is fully borne out. They intend to become a strong competitor with the Chicago & Northwestern for iron ore traffic at several important points on the range, and are understood to have closed arrangements for handling the ore of several important interests. By the purchase of the Escanaba & Lake Superior, a logging road belonging to the Stephenson of Menominee, they get 40 miles of road, and by extensions to this and their main line will reach both the Menominee and Marquette ranges. From parts of the Marquette range they will have a line to their proposed docks no longer than that of the Northwestern. They will touch Crystal Falls on the Menominee with a short line. Large and modern ore docks will be built at Wells, on Green Bay.

Under agreements between the owners of some of the Duluth plants taken over by the Lake Superior Steel Company, and as part of the consideration, the latter must be reopened and under operation by April 9 next. It is expected that H. W. Lash, the manager, will be at Duluth improving the plants in a short time, and that a large addition will be made to their capacity. The company's present plans include pig iron and mining interests. There is a scarcity of fuel for the charcoal furnaces of the lake region, and both the Excelsior and the Manistique will be relighted as soon as possible. The latter has a chemical plant and both have arranged for ore supplies.

Diamond drill work has commenced this week on the village lots of Virginia, Mesaba range, where indications of ore have been known a long time. It is quite possible that a deposit of more or less value may be found there. This is the third town site on the Mesaba range that has been disturbed by discoveries of ore after the village was built. During the past few months the entire population of Eveleth, 6 miles south of Virginia, has been moved from the original location by reason of the opening of a fine mine under the buildings. A large part at least of the town site of Hibbing lies over a bed of ore. It has not yet been moved, but the ore has passed into hands that in time will compel the removal of all buildings, and as there is ore practically on all sides for some little distance the new location will be an interesting problem. Now Virginia is likely to be disturbed. North of it lies the Saunty, east the Oliver group of mines, south ore in the ownership of the Rockefeller concern, and west a lake, so that its future in case ore is found in such quantity as to compel the removal of a village is a matter for question. It is also supposed that ore may exist under the village of Ely, on the Vermillion range. These facts, and others that might be cited, are proof of the crudity of knowledge concerning the ore deposits of the ranges during the early days of exploration and development.

An important mining deal has just been closed on a property lying just south of the Mountain Iron Mine, but probably a distinct deposit. A. Merritt, one of the original Merritt Brothers, who were so prominent in the early days of the Mesaba range, has during the past winter proved ore on the northwest quarter of section

10, T. 58, R. 18, for an extreme width of 1020 feet north and south and a length of half a mile. It is believed there may be a large body, and Mr. Merritt has now sold his leases, two at 50,000 tons minimum each, and 20 cents royalty, to Duluth parties, who will put on drills as soon as possible. This land lies a quarter of a mile south of the Mountain Iron Mine, and the fee is owned by some of the Merritt and kindred interests.

Six mining companies, to operate on the Mesaba, have been formed the past week. The Seneca, Owaseco and Oneida are sub-companies of the Minnesota-Chandler interests, and each have a capital of \$50,000. They will operate lands lately taken by the Chandler company. The Fay Mining Company have \$75,000 capital, with M. L. Fay, C. M. Pearce and H. Roberts incorporators and officers. They are now engaged in opening a mine north of Virginia. The Agate Iron Company have also been formed in the office of the local attorney of the Oliver Iron Mining Company. Corrigan, McKinney & Co.'s lease of the Stevenson mine has been filed. It shows a royalty of from 20 down to 12½ cents per ton, based on the amount mined, the minimum output being 200,000 tons, and the lowest rate not applying till there is an annual output in excess of 500,000 tons. One provision of the lease is to the effect that should the rate for transporting ore from mine to Lake Superior fall to 60 cents or under, the amount of reduction below 60 cents shall be added to the royalty. The lease is based on the present rate of 80 cents a ton.

On the Vermillion range it is understood that the Minnesota Iron Company have found ore in exploitation carried on by them for some time in T. 62, R. 14, east of their hard ore mines, where they have had four diamond drills working several months. John M. Underwood, who has been drilling around Robinson Lake, on the west line of T. 62, R. 13, for some months, has taken out a lease for lands in section 18, where he was working, and has sued to compel the issuance of leases on other tracts that were optioned to him, but which the owners refuse to lease as agreed. The probability is that he has found ore there. A second shaft is to be sunk on the Savoy mine, Oliver Company, and the new deep shaft of Pioneer, same company, is going down rapidly. The question of lining this shaft with steel plate is under consideration by the company and may be carried out, though no determination has been made. It would be the first steel shaft in the iron region, probably in the country.

On the Marquette range the Champion Iron Company are engaged in opening a new mine, lying north of Champion. It is a wide body of ore, though not deep, and will be milled down to the bottom. At the Lake Superior Company's section 21 mine, operated by the Oliver Company, more work is under way than since the property was opened, and 325 men are on the rolls. Much new ground is being opened, and the mine is an assured large producer for many years. The National Steel Company at their Winthrop mine will make a large expenditure for improvements and extensions. The new crusher will represent a cost of some \$25,000, and is to be at work in a few weeks. It will improve the ores materially for furnace use. The Lorraine mine, near Negaunee, has been dropped by its sub-lessees, Corrigan, McKinney & Co., and the original lessees from the Cleveland Cliffs Company are preparing to attempt its operation themselves. The property has not yet been shown to have any great value. It begins to look as if the costly drilling operations at East Barasa, Negaunee, were to prove futile, as nothing but slates has yet been touched.

The Oliver Iron Mining Company have a large number of promising explorations in the three counties of Iron, Dickinson and Florence, on the Menominee range. For miles near Crystal Falls and Amasa and along the river the company are taking all lands they can get and either testing them thoroughly, whatever the expense, or preparing to do so at the earliest moment. A number of options have recently been given on homestead lands in the vicinity of Iron River, both to this company and others, and work is under way at some. The Oliver company are sinking a new shaft at old Michigan mine, near Crystal Falls, and are testing ground between that and the Hemlock. A large body of ore is expected there. The company have many options and are sinking many test pits along the slate contact in that vicinity, and are prospecting the region with great care. Results are looked for by all who have followed the work closely.

The great dock of the Eastern Minnesota road, at the head of Lake Superior, building to handle Mesaba ore, is being rushed by the contractors, who are far ahead of their schedule. The dock is nearly complete. It is the highest and of the greatest capacity, per pocket, of any ore dock in the world. It is now expected that the company will ship more than 2,000,000 tons this year. Their business for 1899 was less than 50 per cent. of that.

D. E. W.

The Iron Age

New York, Thursday, March 8, 1900.

DAVID WILLIAMS COMPANY,	- - - - -	PUBLISHERS.
CHARLES KIRCHHOFF,	- - - - -	EDITOR.
GEO. W. COPE,	- - - - -	ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS,	- - - - -	HARDWARE EDITOR.
JOHN S. KING,	- - - - -	BUSINESS MANAGER.

Refunding and the Banks.

The refunding operation authorized by the new currency measure concerns national banks rather than the public. The new 2 per cent. bonds will be exchanged for outstanding 3's, 4's and 5's, but will not be offered for sale. The 3's are the bonds issued in 1898 to meet the expenses of the Spanish war; the other bonds are older and were issued in earlier operations for refunding the bonds sold for money to carry on the Civil War. The total amount of these three issues is \$839,146,340, and the \$22,000,000 mentioned by Senator Aldrich would be saved in interest payments only if the entire amount were refunded, and refunded immediately. But such quantities of these bonds as are not used to secure bank circulation are not likely to be presented for exchange; there is no profit in the exchange except as the new 2's are used to secure circulation.

When Senator Aldrich's bill originally appeared the refunding section was not received with much favor by national bankers, but they have become so favorably impressed by it that they are not only preparing to pretty generally effect the proposed exchange, but they are buying 3's, 4's and 5's to an extent that has advanced their prices in order to exchange them for the new 2's. They can get circulation equal to 100 per cent. instead of 90 per cent. of the face of the old bonds as well as of the new ones, and the only inducement to substitute 2's is the reduction of the tax on circulation.

The Treasury will take the old bonds at a price which would make their earning power $2\frac{1}{4}$ per cent. and pay the difference between that and par in cash. The following table shows what the price of these bonds would be on April 1 on the basis named in this bill and the market price of them at the end of last week:

	Treasury price, April 1.	Market quotation, March 8.
Threes	105.68	111 $\frac{1}{4}$ to 112
Fours	111.68	116 $\frac{1}{2}$ to 118
Fives	110.07	115 $\frac{1}{2}$ to 116 $\frac{1}{4}$

The operation in 4's, much the largest of these issues, would be this: A bank holding \$100,000 of them, worth \$116,500 to \$118,000, would deposit them with the Treasury and receive \$100,000 in 2's and \$11,680 in cash; it would lose between \$4820 and \$6320 at the above quotations. But on its \$100,000 of bonds the bank now has \$90,000 of circulation, upon which it pays a tax of \$900. On either the new or the old bonds it would hereafter be allowed a circulation of \$100,000. But if the old bonds are left there the tax would be \$1000; if the circulation be secured by the new bonds the tax will be \$500. That \$500 a year, one-half of 1 per cent. of the face value of the bonds, is all that the banks can make by the substitution. Yet they are not only proposing to exchange the bonds they have on deposit, but they are in the market buying 4's at 118 or nearly that to sell to the Government at less than 112 in exchange for the new bonds; to put it differently, the 2's are at a premium of about 6 per cent. before they are issued.

The bill will permit banks to increase their circulation about \$27,000,000 on the amount of bonds now de-

posited. They seem disposed to add materially to the amount of their deposits, with a view to a further addition to their circulation. Presumably it is the prospective profit from this enhanced circulation which makes them willing to incur present loss in buying existing bonds to exchange for 2's.

The Machinists' Strike.

The labor troubles which have been brewing among the machinists for several years have at last culminated. The issue is joined, and the contest has begun between employers and employees for the control of the shops. At present writing actual hostilities have broken out only in the cities of Chicago and Columbus, but the machinists are expected very shortly to strike at many other points throughout the United States and Canada. The officers of the International Association of Machinists would probably have preferred to confine the strike to one city like Chicago, on which they could concentrate their efforts, the members of the union in other parts of the country continuing to work in the meantime and supporting their striking brethren. It is believed that such were their plans, but they have been forced to change them by the apprehension that employers are more closely in touch with one another than supposed and lockouts are feared in other cities. For moral effect upon their followers, the union managers are ordering strikes if lockouts are anticipated. The trouble in Chicago is not confined to shops employing machinists, but extends to factories which may employ a few machinists on special work as part of their force. Such men have also been ordered out under pain of being considered unfriendly to the union. This is causing great inconvenience in numbers of establishments not ordinarily considered machine shops, and may compel many workmen to be laid off who have no connection with the machinists or their union. The demands which have been made upon Chicago employers are stated as follows:

A fixed minimum, irrespective of earning capacity. The employment of union men exclusively, and the discharge of all non-union men now employed.

Granting walking delegates the freedom of the shops to take up and settle grievances.

Nine hours as a day's work, time and a half for all overtime, and double time for holidays.

That handy men, who are not competent machinists, working special tools, all of whom are denied admission to the union, must be discharged within 60 days and must seek employment in other than machine shop work, or remain idle.

Restriction as to the engagement of apprentices, and that no one shall be apprenticed under 15 or over 21 years of age.

No colored men allowed to belong to the union.

Workmen discharged must be re-engaged in the order of their discharge before employer can put new men to work, unless the walking delegate or representative of the union agrees that the workman was discharged for cause, the union to be the sole judge as to what constitutes cause.

The union demands are not made precisely in the language quoted, but their force and effect are given as above by a firm now employing several hundred machinists, including a large number of handy men who are very satisfactorily operating special machines. The handy man is a feature of numerous shops, and particularly of factories in which are employed men of mixed occupations. The minimum of wages demanded in Chicago is 28 cents per hour for tool room men and 32 $\frac{1}{2}$ cents for die sinkers. In the mixed factories the machinists have in a number of cases demanded 32 $\frac{1}{2}$ cents as a minimum, although working special tools requiring no expertness as mechanics. Some of the union leaders claim that they are not conducting a fight

for the recognition of the union, but to secure a nine-hour day. Compared with this, they say, the other points in controversy are trifling. Nevertheless, in their conferences with the representatives of the organized employers, they insist upon the complete acceptance of all their demands.

The indications point to a prolonged contest. Employers have not been taken by surprise, as the men have not concealed their intentions. The struggle would have been made two years since, but for the impending Spanish war, which caused the leaders to defer the movement until a more opportune time. Employers are pretty thoroughly organized as well as the men. The lessons of the engineers' strike in Great Britain are still fresh, and what was done there is likely to be repeated here. Some of the owners of small shops may accede to the terms laid down by the union, but the managers of large establishments assert positively that they will not do so if their works have to lie idle for months. They cannot afford to be tied down by union rules and regulations, which would become every year more and more exacting after union domination had once been accepted.

It is deplorable that such a contest as this should be precipitated while the country is enjoying some of the sweets of prosperity after its long struggle with adversity. This is a harvest time, when men should rejoice in their employment on full time at good wages and lay as much away as possible for the inevitable rainy day of slack demand and scanty employment. They should help in every way to prolong the good times and not shorten them or interfere with them. But this strike is of such a character now and threatens to attain such formidable proportions as to seriously menace our prosperity and cut it short much sooner than would occur if affairs took their natural course. It is to be hoped that the contest will be short, sharp and decisive, and that it will not be dragged out indefinitely as was the engineers' strike in Great Britain.

CORRESPONDENCE.

Laboratory Notes.

To the Editor: I have read Mr. Camp's notes with some little interest. I observe that he weighs his yellow precipitate in determining phosphorus. I have a kindly feeling for any man who does this, as I have done it right along for nearly 12 years. I have got one criticism to make upon his method of procedure, and that is Mr. Camp's method of using a weighed filter. Filter paper at ordinary temperature appears to contain a certain percentage of moisture, or other volatile matter, which may be driven off at 100 degrees C., but on allowing the paper to cool it again slowly picks up this moisture until it regains its original weight. This volatile matter is fairly constant for any fixed atmospheric conditions. It is therefore difficult to get constant weights with filter paper unless extreme care is used in keeping conditions constant. But all this may easily be obviated by using two similar filter papers, which are made to counterpoise with each other.

The two filters may be washed, dried and weighed in exactly the same way, thereby eliminating the error such as described, in addition to any errors caused by change of the paper by treatment with acids, &c.

I should also like to remark that the trouble in evaporating silica fusions may be avoided by adding a small quantity of the carbonaceous residue obtained by treating pig iron with Aqua Regia. After this addition the evaporation may be conducted at a full boil without the least danger of spurting. This addition is useful in any case, except where the siliceous residue is required undiluted.

WASH BOTTLE.

The Hammond Steel & Iron Company.—The lessees of the property of the Lakeside Nail Company, at Hammond, Ind., have organized under the name of the Hammond Steel & Iron Company. They are now overhauling the rolling mill, with a view to placing merchant bar iron on the market within 60 days. They

will have three trains of rolls—namely, 8, 12 and 20 inch—and will make a full assortment of sizes. The steel plant will not be touched at present, although the manufacture of steel is one of the possibilities. The company may decide to put in open hearth furnaces. The cut nail factory will also not be operated at present, but is ready to be started at any time when conditions are deemed specially favorable. The factory contains 100 machines. John D. Briggs is president of the company, C. H. Kirkham is secretary and D. H. Hayes is treasurer. Chicago capital is invested in the enterprise. The lease is for five years.

The Duff Gas Producer.

The Duff Patents Company, 924 Carnegie Building, Pittsburgh, Pa., have recently issued a four-page descriptive circular relating to their Duff patent water seal gas producer. Some strong claims are made for this type of producer. In the circular is given a list of the Duff gas producers now under construction in the United States, as follows: Whitall, Tatum & Co., Millville, N. J., 3; Maryland Steel Company, Sparrow's Point, Md., 4; National Enameling & Stamping Company, Granite City, Ill., 13; Adolphus Bush Glass Mfg. Company, Belleville, Ill., 2; Illinois Glass Company, Alton, Ill., 2; Edward Ford Plate Glass Company, Toledo, Ohio, 7; Shickle, Harrison & Howard Iron Company, East St. Louis, Mo., 4; Pittsburgh Steel Foundry, Glassport, Pa., 4; Michigan Alkali Company, Wyandotte, Mich., 3; Missouri Malleable Iron Company, East St. Louis, Mo., 1; American Steel & Wire Company, Cleveland, Ohio, 14; American Steel & Wire Company, Worcester, Mass., 14; American Steel & Wire Company, Pittsburgh, Pa., 7; Bethlehem Iron Company, South Bethlehem, Pa., 4; Latrobe Steel & Coupler Company, Melrose Park, Ill., 5; Midvale Steel Company, Nicetown, Pa., 6.

A partial list of Duff gas producers installed in Great Britain is as follows: Chas. Cammell & Co., Sheffield; Steel Company of Scotland, Glasgow; Dowlais Iron & Steel Company, South Wales; Park Head Forge Company, Glasgow; Campbell & Co., Glasgow; Glenfield Company, Kilmarnock; Cooper & Co., Portobello; Alloa Glass Company, Alloa, N. B.; Bagley & Co., Knottingley; Lumb & Co., Castleford; R. Johnson & Nephew, Manchester; W. F. Murray & Co., Rutherglen; Midland Pottery Company, Liverpool; Cassell Gold Extracting Company, Glasgow; Glasgow Iron & Steel Company, Walsall; Nettlefolds, Limited, South Wales; L. Lavender, Walsall; John Brown & Co., Sheffield; R. W. Spencer, Lotherdale; West's Gas Improvement Company, Manchester; Carbonic Acid Gas Company, Limited, London; Sir Joseph Whitworth & Co., Manchester; Stewart & Clydesdale, Glasgow; Ridley & Co., Newcastle; Lanarkshire Steel Company, Motherwell; C. & L. Shaw, Huyton Quarry; the United Alkali Company, Liverpool; R. Candlish, Seahan Harbor; Cannington, Shaw & Co., St. Helens; South Wales Glass Company, South Wales; Kilner Bros., Dewesbury; Dowlais Iron Company, Cardiff; J. Muirhead, Glasgow; Bolton Iron & Steel Company, Bolton; Whinneyhill Plastic Brick Company; Ridley Steel Works, Newcastle, and Maripol Nicopol Mining & Metallurgical Company, Russia.

Among claims made for the Duff producer are the following: This producer is specially invented and designed to cheapen the first cost of gas producing plant, and to reduce to a minimum the working expenses; to simplify and improve the methods of generating gas; and to increase the output, secure continuous working, avoid clinking, and to obtain a regular and better supply of gas.

The advantages claimed for this producer are as follows: The output of gas is so great that much less plant is required. The grates from the blower are self feeding and cleaning without mechanism; do not burn out and require no attention. No false bars, fire doors or clinker doors are required. The coal is completely burnt into white clean ash. The ashes are simply shoveled out of a water sealed bottom by cheap labor; there being no risk or heat and no stoppage of the producer. One man can clean eight to ten producers. No heat is lost in the ashes taken out—such heat is utilized in the producer for the formation of steam vapor, which rises through the fuel, softens the ash, prevents clinkers and enriches the gas by its gasification into hydrogen and oxygen, the latter forming carbonic oxide. Less steam for blowing is required for this purpose, due to the vapor rising from ash troughs. No air can escape from blower up the sides of the producer. The air is properly distributed from the center of the fire through numerous slots covering a large area; which burns the coal evenly. There is no loss by leakage at the doors or elsewhere—the gas being sealed by a water seal. The saving of fuel by these improved methods is large, and the saving of labor 30 to 40 per cent. No fire clay for luting up or false bars are required.

OBITUARY.

HENRY R. HAZLEHURST.

Henry R. Hazlehurst, one of the oldest civil engineers of the country, died on February 21, at the home of his son, in Baltimore, Md. He was born in England in 1815. When four years old he was brought by his parents to this country. On the death of his father he entered the service of the Baltimore & Ohio Railroad, in the engineering department. After leaving the service of the Baltimore & Ohio Railroad he established a business in Cumberland, Md., where he lived for 13 years. He afterward moved to Baltimore, where, in connection with the late James Murray, he formed the firm of Murray & Hazlehurst in 1850, and established a large plant for the construction of marine engines and similar work.

SAMUEL A. SAGUE.

Samuel A. Sague was born at Albany, N. Y., August 26, 1841, and was early connected with the iron industry at that point. In 1868 he located in Cleveland, Ohio, where he was connected with the Powell Tool Company. Later he became interested in the Lake Erie Iron Company as manager of their storehouse department. In 1882 he organized the American Wire Company, and was general manager of the company for several years. In 1890 he was elected vice-president of the Britton Iron & Steel Company. In 1895 he organized and built the works of the United States Standard Drawn Steel Company, of which company he was chosen president. He remained in charge of that company until their sale to the Shelby Company. In November, 1899, he interested Cleveland capital in building a knitting mill, to be known as the Mentor Knitting Mills Company. It was while superintending the erection of the buildings that he contracted a cold which resulted in his death, Friday, February 9, 1900. He was the inventor and patentee of several appliances for steel manufacturing, notable among which there may be mentioned a machine for cleaning, galvanizing and tinning sheets and a pickling machine. He also invented the continuous annealing furnace for annealing drawn tubes and wire in retorts. This furnace was purchased by the Shelby Tube Company, and is now in use in their plants.

WILLIAM F. GREENE.

William F. Greene, the well-known manufacturer of stove trimmings and one of the prominent citizens of Troy, N. Y., died suddenly on February 16, in Chicago, Ill., from an attack of heart disease. Mr. Greene was returning from an extended business trip in the West and had stopped off in Chicago for a visit to his sister, when he was seized with his fatal illness. His body was taken to Troy and the funeral took place on Wednesday from his late residence in that city. The deceased, who was 62 years old, was a life-long resident of Troy and for a period of 40 years had been closely associated with the stove trade. He and his brother conducted the Troy Stamping Works until purchased by the present concern. The manufacturing of stove trimmings and patented articles which Mr. Greene was engaged in at the time of his death was started by him in 1890. It was very successful.

WILLIAM E. WARD.

William E. Ward, a prominent manufacturer of Port Chester, N. Y., died on March 2, at his home in that town, at the age of 79 years. He was born in Indiana, and lived for a time in Philadelphia. In 1845 he went to Port Chester and started in business, devoting his attention at first to the manufacture of wood screws, and afterward established a bolt and nut manufacturing plant. He was a pioneer in this business, but being of an inventive turn of mind he supplied the lack of facilities by machinery of his own invention. His inventions soon made the business a profitable one, and the company in which he was interested grew to be one of the largest in that branch of trade in the country. It now furnishes employment for more than 1000 men. At the time of his death Mr. Ward was president of the firm of Russell, Byrdsall & Ward, manufacturers of screws, &c., and of the Port Chester Bolt & Nut Company. He was a charter member of the American Society of Mechanical Engineers and of the American Society for the Advancement of Science.

CHARLES F. HEATON.

Charles F. Heaton, formerly a member of the firm of Bureau Bros. & Heaton, bronze founders, of Philadelphia, died in that city, March 1, at the age of 75 years.

DAVID H. HUTZEN.

David H. Hutzen, who was born in 1867 at Johnstown, Pa., died recently at North Braddock, Pa. He was an expert steel blower, and was connected with the Ed-

gar Thomson Steel Works, in which his father had also occupied a responsible position.

HALSEY FITCH.

Halsey Fitch, a member of the Donally Mfg. Company, manufacturers of pumping and other machinery, New York City, died on March 5, at his home in Brooklyn, N. Y., from appendicitis, aged 66 years.

WILLIAM C. FERGUSON.

William C. Ferguson, superintendent of construction for the Westinghouse Air Brake Company, at Wilmerding, Pa., died suddenly on March 3, from an apoplectic seizure. He was born in County Down, Ireland, in 1842, and had been a resident of Pittsburgh for many years. For the past 17 years Mr. Ferguson had been connected with the Westinghouse Air Brake Company.

SAMUEL SEVERANCE.

Samuel Severance, head of the firm of S. Severance & Sons, spike and bolt manufacturers, died recently at his home, 826 Lincoln avenue, Allegheny. His death was caused by pneumonia. He was born in Pittsburgh, Pa., about 69 years ago, and when a young man entered the spike and bolt manufacturing business with his father. At the death of the latter the son succeeded to the business. His two sons were associated with him in the firm. The works of the company are located at Glassport, Pa. The plant is one of the largest in the country.

GILES F. FILLEY.

Giles F. Filley, for many years one of the most prominent manufacturers and public spirited citizens of St. Louis, Mo., died on February 27 at his home in that city at the age of 85 years. He was born in Connecticut, and when a young man went to St. Louis, where he went into the manufacturing business with his brother. In 1841 he established a pottery for the manufacture of earthenware; and eight years later established the Excelsior Stove Works. The business was incorporated in 1865 under the name of the Excelsior Mfg. Company and, in 1895, was reorganized as the Charter Oak Stove & Range Company.

PERSONAL.

M. S. Collier, formerly first vice-president of the Amalgamated Association of Iron and Steel Workers, and later manager of the tin plate plant of the Alcania Company, at Avonmore, Pa., has been made manager of the Monongahela works of the American Tin Plate Company, Pittsburgh.

John J. Sander of Bellaire, Ohio, has succeeded Samuel W. Vaughn, superintendent of the blast furnaces of Cambria Steel Company, at Johnstown, Pa. Mr. Vaughn goes to the Federal Steel Company as manager of their blast furnaces at Lorain.

Edward H. Sanborn, general manager of the National Association of Manufacturers of Philadelphia, has been appointed by the Census Office to take charge of the collection of statistics relating to the manufacture of all classes of machinery.

Andrew Carnegie has given \$30,000 for the building of a free library at Grove City, Pa., which is located on the Bessemer road.

Robert Devine, formerly manager of the machine shop department of the Frankfort Steel Works, at Ellwood City, Pa., has been appointed superintendent of the entire works, the position recently made vacant by the death of his brother, W. J. Devine.

The statement was erroneously made that Robert McCane of New Castle, Pa., had been appointed auditor of the American Steel Hoop Company. The fact is that J. M. Bentley is the present auditor, and has been since its organization.

Among those whose names appeared in the passenger lists for the Mediterranean last week was Jones Wister of Philadelphia.

L. G. Laureau, special agent in the Department of Mines and Mining of the Paris Exposition, sailed last week. Mr. Laureau also represents a number of American exhibitors.

Members of the Engineers' Department of the Carnegie Steel Company, Limited, tendered a farewell dinner in Pittsburgh, Monday evening, March 5, to R. D. Gottlieb, who has been connected with that department for some time, but who has resigned his position and will leave for Tokio, Japan, in a short time to take charge of the construction of the new palace being built by the heir apparent to the Japanese throne. Wm. B. Scalfe & Sons of Pittsburgh have the contract for the

buildings, while the structural material will be furnished by the Carnegie Steel Company, Limited.

G. L. Luetscher, who designed and has just started the plant of four 25-ton basic open hearth furnaces of the National Enameling & Stamping Company, at Granite City, Ill., has accepted a position with the Otis Steel Company, Limited, at Cleveland, Ohio.

Lloyd Booth, president of the Lloyd Booth Company, engineers, founders and machinists, Youngstown, Ohio, is seriously ill.

Alexander D. Morgan has been appointed resident manager in the New England States for the New York Blower Company, and has opened an office at 185 Summer street, Boston, Mass.

C. W. Wrenshall has been appointed assistant to the president of the Southern Car & Foundry Company, Anniston, Ala. Fred. Bishop has been appointed superintendent of the company's rolling mill department and H. M. Irwin superintendent of the foundry department.

Cornelius Shields of Minneapolis, Minn., has been elected vice-president and general manager of the Virginia Iron, Coal & Coke Company, and D. Davis of St. Paul, Minn., has been elected auditor of the company.

L. Nachmann, the New York representative of Brandeis, Goldschmidt & Co., the large London metal merchants, will be one of the passengers on the "Kaiser Wilhelm Der Grosse" on her next trip, Tuesday, March 13.

Annealing Malleable Cast Iron.*

BY GEORGE C. DAVIS, EASTON, PA.

Two statements have been frequently made concerning the changes resulting from annealing that have not attracted the attention they deserve. The first is that malleable iron gains in weight, and the second is that it expands about $\frac{1}{8}$ inch per foot. Now, the question naturally arises, Is there actually any expansion, or is it merely concretions or building up of the castings from the surrounding packing? Some thin castings were given a decarbonizing annealing in mill scale packing in a very hot oven. The results are given in table No. 1, the weights being stated in grams:

Table No. 1.—Showing Gain in Weight.

Hard iron.	Annealed.	Per cent. gained.	2d anneal.	Per cent. gained.
40.1875	42.4900	5.81	42.5460	0.13
44.8700	47.5465	5.96	47.5885	0.09
38.4440	41.0430	6.76	41.0885	0.11

We deduce from these figures that, under these conditions, there is an average net gain of 6.29 per cent., or, allowing for loss of carbon (approximately 3.40 in this case), that there is an actual concretions of 9.69 per cent. of the weight of the casting.

Next a number of small castings were annealed in a packing not containing any appreciable amount of iron. Sand was the packing used, and the results are given in table No. 2:

Table No. 2.—Showing Effect of Annealing in Sand.

Hard iron.	Annealed iron.	Per cent. loss.
72.657	70.458	3.02
85.324	81.7810	4.15
75.4924	71.0320	5.84
41.6035	39.2855	5.66

These castings were covered with a thick, soft scale, and part of the loss was due to this, while an examination showed that there had also been a partial oxidation of the carbon. The pot was a small one and the castings rather more exposed to the action of the air than they would have been in a larger pot.

For a third experiment a set of bars, each 12 inches long by 1 inch wide, and of different thickness, from $\frac{1}{8}$ to $\frac{3}{4}$ inch, were cast from the same heat. There were four bars in each set, and the results are as uniform as could be expected. I selected in each case the bar showing the nearest to the average, and the results are given in table No. 3. The first line represents the annealed bar and the second the unannealed in each case. The dimensions are given in inches:

Table No. 3.—Showing Expansion.

	Length.	Breadth.	Thickness.
$\frac{1}{8}$ -inch bar.....	11.832	1.050	0.144
	11.768	1.037	0.132
$\frac{1}{4}$ -inch bar.....	11.930	1.031	0.267
	11.784	1.015	0.254
$\frac{3}{8}$ -inch bar.....	11.927	1.043	0.392
	11.757	1.020	0.382
$\frac{1}{2}$ -inch bar.....	12.193	1.021	0.609
	11.909	1.000	0.497
$\frac{3}{4}$ -inch bar.....	11.942	1.032	0.633
	11.742	1.007	0.615
$\frac{7}{8}$ -inch bar.....	11.964	1.030	0.749
	11.769	1.005	0.732

In table No. 4 I have given the figures showing increase in weight and diffusion of carbon on the above

* Prepared for the March meetings of the Foundrymen's Associations.

bars. The iron analyzed, silicon 0.60, sulphur 0.047, and total carbon 3.23, except in the case of the $\frac{1}{8}$ -inch bars, which were poured from another ladle, and contained 3.18 per cent. carbon.

Table No. 4.—Showing Changes in Weight.

	Unannealed.	Annealed.	Gain per cent.	Loss carbon.	Concretion.
$\frac{1}{8}$ -inch bar.....	204.9	211.6	3.27	2.90	6.17
$\frac{1}{4}$ -inch bar.....	377.8	384.6	1.80	1.97	3.77
$\frac{3}{8}$ -inch bar.....	555.1	561.6	1.17	1.43	2.60
$\frac{1}{2}$ -inch bar.....	735.2	740.2	0.68	1.28	1.96
$\frac{3}{4}$ -inch bar.....	882.5	890.1	0.86	1.27	2.13
$\frac{7}{8}$ -inch bar.....	1068.8	1076.4	0.71	1.18	1.89

An examination of these tables shows that the changes result from complex causes. Taking the extreme cases, the $\frac{1}{8}$ -inch bar increased in length about one-third as much as the $\frac{3}{4}$ -inch bar. The cubic contents of the $\frac{1}{8}$ -inch bar, based on the above dimensions, are 1.61 and 1.776 inches, a gain of 10.29 per cent., while the concretions was 6.17 per cent. In the $\frac{3}{4}$ -inch bar we obtain 8.657 and 9.23, or an increase of 6.60 per cent., while the concretions was 1.89 per cent. Now, in the first case the increased volume appears to have been largely due to concretions, while in the second case the remaining graphitic carbon may be the cause. In the white iron practically all the carbon is in combination. During the annealing this carbide is decomposed and the carbon nearly all removed, while in the $\frac{3}{4}$ -inch bar two-thirds of the original carbon remains as graphite. It should be noted that the measurements taken on the light bars cannot be so reliable as those on the heavier sections. The reason for this is the warping of the light sections during annealing. The carbon determinations were made on samples taken from a cross section in the center of the bar.

Just what reaction occurs between the carbon of the casting and the iron oxide of packing there is not sufficient data to determine, but in all probability it is complex. We know that considerable carbon oxide escapes from the pots during annealing, and that both ferric and ferrous oxides are present in the packing. A comparison of the results in tables No. 1 and No. 3 shows that the concretions is greater if the annealing is done at a higher temperature. This illustrates the difficulty in making any general statement covering the case. All we can safely assert is that the carbon as it diffuses reduces the adjacent packing, which at the annealing heat welds onto the casting.

Table No. 5.—Diffusion of Sulphur.

	White iron.	Annealed.
$\frac{1}{8}$ -inch bar.....	0.047	0.072
$\frac{1}{4}$ -inch bar.....	0.047	0.066
$\frac{3}{8}$ -inch bar.....	0.047	0.060
$\frac{1}{2}$ -inch bar.....	0.047	0.058
$\frac{3}{4}$ -inch bar.....	0.047	0.062
$\frac{7}{8}$ -inch bar.....	0.047	0.058
$\frac{3}{4}$ -inch bar, outside	0.047	0.082
$\frac{3}{4}$ -inch bar, inside	0.047	0.046

These results show that sulphur diffuses, and, like carbon, it varies with the cross section of the casting, other conditions being the same. That the gain in sulphur is near the surface is shown by the results on the $\frac{3}{4}$ -inch bar. While the center remained unchanged, the outside sample taken 1-50 inch increased 0.035. It will probably be a surprise to many that there is so large a gain in this element. Much of the packing is made from mill scale, from common grades of wrought iron. This was originally made from forge pig containing 10 per cent. or often more in sulphur. In the heating furnace the muck bar is exposed to the gases of combustion and a further absorption takes place. Samples of mill scale from different works gave an analysis of 0.17 and 0.26 per cent. for wrought iron scale, and 0.061 and 0.084 per cent. for steel scale. In the decarbonizing annealing of thin castings it is necessary to have a packing as low in sulphur as possible and free from foreign matter. A pitted surface will often result from poor packing, caused both by the diffusion of sulphur and small particles of foreign matter becoming imbedded in the iron that builds up the casting. In the case of castings that are to be polished or plated this pitted surface is objectionable, as it renders the finishing operations difficult. Iron ores very low in sulphur can be obtained, but the present high price of iron is almost prohibitive. Annealing in ore requires rather different treatment, as the ores are chemically more active and the castings lose, rather than gain, owing to oxidation of the iron. Laudig (Trans. Amer. Ins. Mining Eng.) speaks of this fact in connection with the reducibility of ores in a blast furnace, and has shown that there is a wide difference in the reducibility of apparently similar oxides of iron. The length of these test bars in these experiments was measured on an improvised scale. This was made by cutting a 2-inch micrometer in halves and bolting each on an iron frame, so that at zero the distance was $11\frac{1}{4}$ inches. As the micrometer was graduated from 1 to 2 inches, we were thus enabled to read any variation between $11\frac{1}{4}$ and $12\frac{1}{4}$ inches.

A New Tax on Ontario Nickel.

TORONTO, February 24, 1900.—In the Ontario Legislature on the 20th inst. Premier Ross announced still another change in the Government's nickel policy. In place of the scheme, adopted by order-in-council last November, for restricting the exportation of ore and matte from part of the nickel belt, a plan is to be adopted which is intended to stop the exportation of crude nickel from all lands alike. A stiff mineral tax is to be imposed, and the whole or the greater part of this tax is to be refunded on so much of the material as shall be refined in Canada. Thus the Ontario Government will levy what is tantamount to an export duty, for the only condition which can make crude nickel liable to the irredeemable imposition of this tax is the exportation of the matte or ore. To get the amount of the tax back all that is necessary is that the material shall be refined on this side of the line. The restrictive arrangement applies alike to raw nickel taken from the Crown lands and raw material from lands held in fee simple, to raw nickel produced from lands already patented and from lands hereafter to be patented, to the ores and matte of the Canadian Copper Company as to the ores and matte of all entering into competition with that company. There are no exceptions in favor of any parties or localities. All Ontario nickel must be refined in Canada or subjected to a burdensome tax, calculated to negative exportation.

The model for this arrangement is a device that has just been adopted in the neighboring Province of Quebec to confine to that Province the manufacture into pulp of Quebec pulp wood, that material having been heretofore very largely exported in the raw State to mills across the line. The Quebec arrangement in question subjects all pulp wood cut on the Crown lands to a stumpage tax of \$1.90 per cord, but provides that \$1.50 per cord shall be refunded on so much of the pulp wood as is made into pulp in the Province. The Ontario nickel scheme differs from this in two details: 1, Being inclusive of all crude nickel instead of that merely produced from the Crown lands, and 2, restricting manufacture, not narrowly to the Province, but to the whole Dominion.

There is no question of the Ontario Government's power to do this. In the British North America act the Imperial statute, which is the organic law of the Dominion and the Provinces, there is nothing to limit the choice of the Provincial Governments in the matter of sources of revenue, save the provision that the control of trade and commerce is reserved to the Dominion. Hence, no Province can impose a customs duty and excise duty or an export duty. It is true the difference between Mr. Ross' nickel tax and an export duty is a mere difference in words, but it is a saving difference. To ordain or enact that a commodity shall be taxed if it is exported is the same in effect, though not quite the same in terms, as a law taxing the commodity irrespective of exportation and prescribing that out of the receipts from such impost a bonus shall be paid for so much of the commodity as shall be manufactured at home. The difficulty of acting in the premises without encroaching on Dominion authority has therefore been overcome by the Ontario Government. Another difficulty was overcome—namely, that of dealing with lands that were no longer under the Crown domain. If the Government had put its restriction in the form of an order or a law to regulate mining, such order or law could not have touched the minerals on lands held in fee simple. That was the defect of the recent order-in-council. It did not affect the ore or matte of the Canadian Copper Company, or of the several other parties who hold their mineral lands under patents from the Crown. It was therefore of no practical use for the purpose for which it was passed. It left unrestricted the exportation it was purported to stop and limited the exportation advantageously for those who have their patents, and disadvantageously for prospectors and others who contemplated taking out patents. The order-in-council gave satisfaction to nobody, and all the interests depended on nickel mining about Sudbury protested in the strongest terms against it. It was the energetic condemnation of the Sudbury people which caused the change in policy which Premier Ross has just announced.

Another change demanded by the Sudbury people in their conference with the Commissioner of Crown Lands a few weeks ago was the abolition of the royalties. It is now given out by the Government that their wishes in this regard will also be met. It must be said that the State of the law in respect to royalties made the conditions for different producers very unequal. One clause of the Mining act provides that the royalties to which the ore of lands granted before May 4, 1891, was subject is after that date abolished. Consequently the ores mined by the Canadian Copper Company, or the ores that might be mined by many other holders whose patents are of earlier date than 1891, are exempt from royalties. Another clause provides that all ores and minerals mined on lands sold, granted or leased by the Crown between May

4, 1891, and January 1, 1900, are to bear royalty charges as follows: Silver, nickel, nickel and copper and iron ores, 2 per cent. of their value at the pit's mouth. But in no case were the royalties to be collected on ores mined within seven years of the date of patent. A third clause prescribed that on ores taken from lands granted after January 1, 1900, the royalty rates should be as follows: On ores of silver, nickel and nickel and copper, 3 per cent.; on iron ore, 2 per cent.; on all other ores not more than 3 per cent, but so much less as might be fixed by order-in-council. Now the Government, yielding to the outcry against the royalties, has abolished them.

Large results are expected from these two changes. While the Sudbury people were most prominent in the agitation against the recent nickel order-in-council and against the royalties, it is believed that the particular course the Government finally resolved to take to remove the grievances was at the suggestion of the promoters of the Clergue Refining Works at Sault Ste. Marie, and of the parties who have organized themselves into a \$10,000,000 company to take over the Hoepfner refining works at Hamilton.

The Champion Iron & Steel Works.

The Champion Iron & Steel Company, Muskegon, Mich., have begun to get some of the late additions to their plant in operation. They have just put in operation their new muck mill plant and state that everything is working with a smoothness unusual in a new works. The muck mill is equipped with four regenerative gas furnaces, with a capacity of 75 tons per day. The mill is driven by a 28 x 60 Wetherill Corliss engine. The building is 240 x 60 feet, with a lean to of 30 feet, covering all the furnaces. The starting of this part of the works increases the output of finished bars to 100 tons per day of open hearth steel and iron. The company do no bushelling and nothing but No. 1 heavy stock is used, so that all the iron turned out is of high quality.

The open hearth steel plant has also been put in operation again after a thorough overhauling and remodeling, with an increase of capacity of 50 per cent. The company expect to consume a large part of the product of the open hearth works in the tin plate plant they are now erecting. Rapid progress is being made with the tin plate plant. The foundations are all completed and nearly all of the machinery is on the ground, and it is expected to start four of the eight hot mills in about 60 days. The company are putting in a first-class plant in every respect. They are installing Allis Corliss compound condensing engines, made by the E. P. Allis Company, Milwaukee. The hot mills are driven by rope gearing, the cold mills being tandem. The mills are fitted with electric traveling cranes. When completed the mills will be in the front rank of tin plate plants for convenience of working and strength of machinery.

Some changes have taken place recently in the official force. D. M. Hillis, former president, and L. Friedman, former secretary and treasurer, have retired. R. L. Henry of Chicago is now president, Theo. D. Morgan, former vice-president and general manager of the Atlanta Steel & Tin Plate Company, Atlanta, Ind., is general manager, and Walter E. Stoy, late secretary and treasurer of the New Albany Iron Company, New Albany, Ind., is secretary and treasurer.

Contractor A. C. Douglass has commenced the work of sinking the shaft designed to afford facilities for extending the Niagara Falls power tunnel to the new wheel pit. The present length of this tunnel is over 7000 feet, and it is to be extended between 600 and 700 feet further in order that the water from the new turbines may be carried off through the tunnel to the lower river. The location of the new shaft is in the inlet canal, between the bridge leading from the power house to the transformer station and the land end of the canal. This brings it nearly in front of the power house. A cofferdam has been constructed under the bridge referred to, which has the effect of shutting off the water of the inlet canal from the point of operations. The dimensions of the shaft are 10 x 16 feet, and its depth to the heading of the tunnel will be about 150 feet. The tracks of a spur of the Niagara Junction Railway are carried over the dry bed of the canal on a trestle, and cars are run right up to the shaft and the muck dumped into them, after which the cars are run to low places on the Niagara Falls Power Company's lands, and the material deposited for filling. It appears evident that the shaft now in building will be a wet one, owing to the inflow of water; but a novel method has been provided for getting rid of this water by drilling two 8-inch holes down through the rock to the tunnel. The water that enters the shaft flows through these holes into the tunnel, the only expense therefore being that of the cost of drilling the holes referred to. It will take two or three months to sink the shaft.

A Decline in Pig Iron Production.

A Moderate Increase in Stocks.

Chiefly as the result of hampering conditions the normal capacity of the furnaces in operation during March was not reached, and on the basis of the February product we entered March with a decline in the rate of output.

In some sections there is some accumulation of pig iron, showing that the consumption is not absorbing the total product of certain grades and qualities.

The weekly capacity of the furnaces in blast on March 1 compares as follows with that of preceding periods:

	Furnaces in blast.	Capacity per week. Gross tons.
March 1, 1900.....	293	292,643
February 1.....	296	298,014
January 1.....	280	294,186
December 1, 1899.....	283	296,969
November 1.....	277	288,522
October 1.....	265	278,650
September 1.....	257	267,335
August 1.....	244	267,672
July 1.....	237	263,363
June 1.....	220	254,062
May 1.....	217	250,095
April 1.....	205	245,746
March 1.....	192	228,195
February 1.....	195	237,639
January 1.....	200	243,516
December 1, 1899.....	195	235,528
November 1.....	196	228,935
October 1.....	192	215,635
September 1.....	186	213,048
August 1.....	187	206,777
July 1.....	185	216,311
June 1.....	190	225,398
May 1.....	194	224,163
April 1.....	194	238,389
March 1.....	193	234,430
February 1.....	184	228,338
January 1.....	188	226,608
December 1, 1897.....	191	226,024
November 1.....	183	213,159
October 1.....	171	200,128
September 1.....	161	185,506
August 1.....	152	165,378
July 1.....	145	164,064
June 1.....	146	168,380

Charcoal Furnaces in Blast March 1, 1900.

Location of furnaces.	Total No. of stacks.	No. in blast.	Capacity per week.	No. out of blast.	Capacity per week.
New England.....	11	3	274	8	730
New York.....	2	1	100	1	95
Pennsylvania.....	13	0	0	13	670
Maryland.....	4	1	116	3	440
Virginia.....	4	1	48	3	290
Ohio.....	8	1	87	7	475
Kentucky.....	3	0	0	3	200
Tennessee.....	7	5	1,020	2	200
Georgia.....	3	2	482	1	200
Alabama.....	5	3	909	2	160
Michigan, Missouri and Wisconsin.....	16	10	3,989	6	2,688
Texas.....	4	2	383	2	600
Totals.....	80	29	7,407	51	6,748

As compared with previous months the record of active charcoal furnaces stand as follows:

	Furnaces in blast.	Capacity per week.
March 1, 1900.....	29	7,047
February 1.....	32	8,004
January 1.....	30	7,457
December 1, 1899.....	30	7,511
November 1.....	29	7,113
October 1.....	25	6,222
September 1.....	24	5,665
August 1.....	22	6,189
July 1.....	20	6,018
June 1.....	16	4,943
May 1.....	20	4,846
April 1.....	17	4,777
March 1.....	16	4,330
February 1.....	17	4,967
January 1.....	20	6,026
December 1, 1898.....	18	6,018
November 1.....	20	5,947
October 1.....	20	5,732
September 1.....	21	6,293
August 1.....	22	6,459
July 1.....	19	5,647
June 1.....	20	6,762
May 1.....	18	6,571
April 1.....	16	5,716
March 1.....	16	5,470
February 1.....	14	4,734
January 1.....	16	5,442
December 1, 1897.....	19	5,061
November 1.....	19	4,656
October 1.....	20	4,636

Coke and Anthracite Furnaces in Blast March 1, 1900.

Location of furnaces.	Total No. of stacks.	No. in blast.	Capacity per week.	No. out of blast.	Capacity per week.
New York.....	13	6	7,054	7	3,650
New Jersey.....	7	6	3,493	1	300
Spiegel.....	2	2	500	0	0
Pennsylvania:					
Lehigh Valley.....	27	25	12,743	2	1,060
Spiegel.....	1	1	110	0	0
Schuylkill Valley.....	15	10	6,831	5	3,192
Upper Susquehanna.....	5	3	2,572	2	950
Lower Susquehanna.....	10	10	6,217	0	0
Lebanon Valley.....	13	11	8,280	2	934
Pittsburgh District.....	29	28	62,575	1	2,458
Spiegel.....	1	1	2,638	0	0
Shenango Valley.....	15	14	18,233	1	1,330
Western Pennsylvania.....	19	15	16,098	4	1,940
Spiegel.....	1	0	0	1	1,000
Maryland.....	4	3	4,472	1	175
Spiegel.....	1	1	814	0	0
Wheeling District.....	11	11	14,184	0	0
Ohio:					
Mahoning Valley.....	13	13	20,823	0	0
Central and Northern.....	11	11	18,934	0	0
Hocking Valley.....	2	2	875	0	0
Hanging Rock.....	12	10	5,832	2	230
Illinois.....	14	14	24,759	0	0
Spiegel.....	2	2	1,927	0	0
Minnesota.....	1	1	900	0	0
Wisconsin.....	4	3	3,047	1	1,000
Missouri.....	2	1	900	1	850
Colorado.....	2	2	2,250	0	0
The South:					
Virginia.....	21	17	10,045	4	2,278
Kentucky.....	5	4	1,502	1	650
Alabama.....	37	27	22,479	10	6,600
Tennessee.....	12	9	4,372	3	1,220
Georgia.....	1	0	0	1	450
North Carolina.....	2	1	68	1	352
Totals.....	315	264	285,596	51	30,669

In comparison with previous months the record of the coke and anthracite furnaces stands as follows in gross tons:

	Number in blast.	Capacity per week.
March 1, 1900.....	264	285,596
February 1.....	264	290,010
January 1.....	250	286,729
December 1, 1899.....	253	289,448
November 1.....	248	281,409
October 1.....	241	272,428
September 1.....	243	261,670
August 1.....	222	261,483
July 1.....	217	257,346
June 1.....	204	249,119
May 1.....	197	245,249
April 1.....	188	240,969
March 1.....	175	223,865
February 1.....	178	232,672
January 1, 1899.....	180	237,490
December 1, 1898.....	177	229,510
November 1.....	176	222,988
October 1.....	172	209,903
September 1.....	165	206,750
August 1.....	165	200,318
July 1.....	166	210,664
June 1.....	170	218,636
May 1.....	176	227,592
April 1.....	178	227,623
March 1.....	177	228,960
February 1.....	170	223,604
January 1, 1898.....	172	221,166
December 1, 1897.....	172	220,962
November 1.....	164	208,506
October 1.....	151	195,492
September 1.....	140	180,951
August 1.....	132	161,375

Furnace Stocks.

The position of furnace stocks, sold and unsold, as reported to us, was as follows on March 1, the same furnaces being represented as in former months. This does not include the holdings of the steel works producing their own iron:

	Oct. 1.	Nov. 1.	Dec. 1.	Jan. 1.	Feb. 1.	March 1.
Stocks.						
Anthracite and Coke.....	93,250	89,709	94,946	107,231	126,418	162,280
Charcoal.....	27,291	21,834	18,747	20,115	21,918	22,872
Totals.....	120,541	111,543	113,693	127,346	148,336	185,152

Warrant Stocks.

We are indebted to the American Pig Iron Storage Warrant Company for the following statement of stocks of warrant iron:

	Oct. 1.	Nov. 1.	Dec. 1.	Jan. 1.	Feb. 1.	March 1.
Stocks.						
Coke and Anthracite.....	14,800	10,300	4,100	3,200	2,800	1,600
Charcoal.....	7,700	6,100	5,200	1,700	1,500	1,400
Totals.....	22,500	16,400	9,300	4,900	4,300	3,000

The Town Council of Hanover, Pa., have passed an ordinance exempting new manufacturing establishments from taxation, with the object of promoting the industrial prosperity of the town.

MANUFACTURING.

Iron and Steel.

The Laird Malleable Iron Company have been organized at Huntingdon, Pa., and will engage in the manufacture of all kinds of malleable castings, Laird patent malleable snow and ice guards, roof gutter irons and improved eave trough hangers. The company have purchased the Gondola property in Huntingdon, and have fitted it up to make 10 to 15 tons per day of malleable castings. On February 14 a charter was granted the concern, the capital being \$100,000, most all of which, we are advised, has been paid up. S. R. Haupt of Milton, Pa., is president; A. Gans of 666 Bourse Building, Philadelphia, is treasurer; O. L. Stewart of Huntingdon is secretary, and John White is vice-president and will have the duties of general manager.

As already noted in these columns, the Franklin Air Compressor Company have been organized at Franklin, Pa., for the purpose of manufacturing air compressors for every application of compressed air power. The concern have applied for a charter of incorporation, with a capital stock of \$300,000, and General Charles Miller of Franklin will be president.

At Pittsburgh the Carnegie Company, Limited, have awarded a contract for the construction of a water tunnel for the new water works being erected at the Carrie Furnaces, at Rankin. The tunnel will be 32 feet below the surface of the ground, and will consist of a 10-foot arch running for 670 feet.

William S. McGowan, Jr., has resigned as treasurer of the Hancock Inspirator Company of Boston, Mass., to become treasurer and general manager of the Portland Iron & Steel Company of Portland, Maine, a new company. The plant of the Portland Rolling Mills, at South Portland, Maine, has been bought and will be equipped with modern machinery.

The rod mill at the New Castle Works of the American Steel & Wire Company, New Castle, Pa., was started up last week, after being idle about nine months.

The Mahoning Mfg. Company, with a capital of \$100,000, are being organized at Youngstown, Ohio, by John C. Wick and others to manufacture steel rivets, spikes and railway supplies. A plant will be erected as soon as buildings and machinery can be procured.

The Star Works of the American Tin Plate Company, at Pittsburgh, did not start up Monday, February 26, as expected, owing to the fact that repairs were not completed. The works are expected to resume on Monday, March 12. The Monongahela Works, also at Pittsburgh, containing 14 mills, is in partial operation, eight mills having been started up and the other six are expected to resume this week.

The Charlotte Steel & Iron Works is the name of a new company that have been incorporated to operate the large blast furnaces at Charlotte, N. Y., near Rochester. William Mears of Philadelphia is president of this company, and E. R. Holden of New York is secretary and treasurer. The company also have a furnace in Tennessee and also have ore mines in the Lake Superior region. F. E. Hall of Cleveland will be superintendent of the plant. Quite a large force of men is now at work putting the works in first-class order preparatory to operation. A new laboratory is to be built and a Mr. Leonard will be the chemist in charge. The Charlotte furnace has always made foundry iron, and the same will now be produced. The output will be between 60 and 70 tons a day. New railroad sidings are being built. The ores from Canada and Lake Superior will be brought by boat and landed at the company's docks on the Genesee River, where a movable steam derrick will be placed to unload the boats. A large supply will be stored for winter use. During the fall of 1892 the Charlotte Furnace was put in complete repair and blown in. In March, 1893, the fires were banked, owing to the depression in the price of iron at that time.

The Meadville Malleable Iron Company of Meadville, Pa., have been incorporated with a capital of \$100,000.

The Clitico Furnace Company, Chatanooga, Tenn., blew in their Clitico Furnace on March 3.

The Michigan Iron Company, Detroit, Mich., have been incorporated for the manufacture and sale of pig iron, with a capital of \$100,000. The incorporators are W. P. King and C. E. Levett of Buffalo and E. H. Flinn of Detroit.

The American Tin Plate Company have given a contract to Wm. Waite for an addition to the tin house at the Monongahela Works, in Pittsburgh.

On February 26 the rolling mills of the Detroit Steel & Spring Company, Detroit, Mich., were destroyed by fire. The fire was confined to this one department, and the spring shops, crucible furnaces and steel casting foundries are in nowise affected, and will be in operation the same as before. Before the fire was fully extinguished the company were in communication by wire and telephone with the manufacturers of steel buildings, and expect to have one building 180 x 300 feet long erected within a few weeks. The company also have extensive machine shops, which were in no ways affected, and hence will be able to repair and put the mills in order speedily. About 1000 men were employed at the time of the fire and the works were running day and night. On account of their extra buildings and

facilities the company do not anticipate any delay, but announce that they are still doing business at the old stand.

The Vernon Iron Company, incorporated last year with a capital stock of \$30,000 and offices at Ironton, Ohio, have purchased at trustees' sale the lands of the Campbell Iron Company, at Mt. Vernon, near Ironton. Officials have been elected as follows: J. H. Moulton, president; B. M. Caldwell, vice-president; Carl W. Moulton, secretary and treasurer. The above, in connection with H. H. Campbell and J. Harry Moulton, comprise the Board of Directors. The lands which this concern have bought from the Campbell Iron Company, and also from J. S. Neal, trustee of H. Campbell & Son, aggregate over 10,000 acres, a large part of which is underlaid with ore, coal, fire clay, pot-ter's slag, limestone, &c. The surface is well adapted for grazing.

The new sheet mill plant of the Coshocton Rolling Mill Company, Coshocton, Ohio, is now in operation to full capacity, and the company are now making shipments of their Royal Blue brand of steel sheets. The statement that the mill had been broken down and the engine failed to do the work required is utterly untrue. Everything about the plant is running smoothly, and the engine is doing its work so well that one boiler can be out of use without impairing the efficiency of the plant.

The Kittanning Iron & Steel Mfg. Company, Kittanning, Pa., have started 18 puddling furnaces at their plant. Their entire puddling plant, consisting of 33 single furnaces, has been idle since the holidays. This concern recently struck an additional vein of gas on their property, which will give them fuel to run their puddling furnaces for a long time.

The La Belle Steel Company, Pittsburgh, Pa., with plant at Ridge avenue and Rebecca street, Allegheny, Pa., and manufacturers of steel of all descriptions, have recently purchased a large body of land immediately opposite their works. It is their purpose to use this additional property for some necessary improvements.

The Portland Iron & Steel Company have been incorporated to operate a mill on the site of the old Portland Rolling Mill plant, Portland, Maine, which was burned a year ago. The capital stock of the company is \$75,000. The work of rebuilding will be commenced at once, and it is expected that the works will be in operation in May. The officers of the company are Charles Means of Manchester, N. H., president; William S. McGowan, recently manager and treasurer of the Hancock Inspirator Company, Boston, treasurer. The directors, in addition to the above, are Eben D. Bancroft and Charles M. Day of Oakdale, Mass.; Roland H. Boutwell of Lowell, Mass.; John M. Russell, Worcester, and Perry H. Dow of Manchester, N. H.

The wire and wire nail mill of the New Castle Works of the American Steel & Wire Company has been put in operation after being idle nearly nine months.

The Laughlin Works at Martin's Ferry, the Aetna-Standard Works at Bridgeport and the La Belle Works at Wheeling, which belong to the American Tin Plate Company, are in full operation and turning out a large product.

Machinery.

The Harrisburg Foundry & Machine Works, Harrisburg, Pa., manufacturers of Harrisburg engines, steam plants and road rollers, are having a large demand for their Harrisburg Corliss engine. This concern have recently completed a new plant, and are running both the old and the new works to full capacity night and day. They advise us that the demand for their products is larger than ever before in their history. The Corliss engines made by this concern are, we are advised, of an entirely new design, and so arranged that they can run at considerably higher speeds than the older type. It is pointed out that this fact alone has a very important significance, as the whole tendency of engine designed to-day is toward higher speeds and higher pressures. The effects of this are, that the space occupied by a unit is considerably less, the cost of foundations, therefore, is considerably less, the regulation very much better and higher efficiencies obtained. The style of Corliss engine made by the Harrisburg Foundry & Machine Works has met with very general approval by engineers. The shops of this concern are equipped in the most thoroughly up to date manner, after careful study by their engineering department of the very best samples of similar institutions throughout the country. The concern believe, they state, that they are equipped to furnish machinery at a very low cost, having all modern facilities for so doing.

The Pittsburgh Feed Water Heater Company of Pittsburgh have made application for a charter of incorporation. The incorporators are John E. Schlieper, James Bonar, Thomas Patterson, John H. Roney and Joseph Cawley.

The Harrisburg Pipe & Pipe Bending Company, Harrisburg, Pa., manufacturers of coils, bends and manifolds of iron, brass and copper pipe, are making considerable headway in the work of removing the old car works' building just west of the Herr street mill, and a small shed at the upper end and the brick office building at Herr street alone remain on the site. The materials in the old car shops are going into the erection of the additions to the pipe company's plant in that vicinity. The railroad company are grading off the site preparatory to putting down the tracks. The company desire the vacating of Eighth

street at that point in order that they can utilize the ground for this purpose.

The Enterprise Boiler Company, Youngstown, Ohio, manufacturers of steel plants, blast furnaces, steel stacks, boilers, tank and heavy plate work, are doing a large amount of iron work at the remodeling of the Isabella Furnaces of the American Steel Hoop Company, at Etna, Pa. It is expected to bring the capacity of these furnaces up to 400 tons each, or 1200 tons per day for the three stacks.

The Kilborn & Bishop Company, New Haven, Conn., have recently added to the equipment of their drop forging plant, and advise us that they are at present executing a number of contracts for gun forgings in steel and for electrical forgings in copper, and that they have excellent facilities for such work.

The Williams Reciprocating Rotary Engine Company of Wilmington, Del., were incorporated March 3 with a capital of \$500,000, for the purpose of manufacturing and selling reciprocating rotary engines. The incorporators are W. D. Williams of Fredericksburg; J. H. Stephens of Vernon, Texas; J. F. Key, P. B. Van Mater, C. L. Walker, M. H. Sullivan, H. P. Holden, K. E. Finleigh, Mary Wells, M. M. Rose, T. B. Amis, H. B. Newman and E. V. Cahill, all of Washington, D. C.

The Quincy Valve & Mfg. Company, Quincy, Ill., makers of Huxley's patent valve remodeler, report an exceedingly good demand for their specialty. Inquiries are coming in freely, and the prospect for this year's trade is assured to be very encouraging.

The Youngstown Rivet Company of Youngstown, Ohio, are about to make very extensive improvements in their plant, which is exclusively devoted to the manufacture of boiler, ship and structural rivets. When incorporated their title in future will be the Mahoning Mfg. Company, with \$100,000 capital, all of which is subscribed for. They are in the market for one milling machine, a cold circular saw, a drill press, a 150 horse-power gas engine, conveyors, shafting, surface grinder and various special machinery.

The Gardner Governor Company are making arrangements for the erection of a new and larger plant at Quincy, Ill.

Hunt, Helm, Ferris & Co. will shortly begin the erection of a foundry and will also enlarge their main factory building at Harvard, Ill.

The F. M. Davis Iron Company, Denver, Col., will erect a building, to cost \$40,000, replacing the one recently burned. The new structure will cover a frontage of 200 feet and will run back 132 feet. The front portion of the building will be taken up with the offices of the firm, and the rear will be used for the boiler and machine shops. The company are now operating to their full capacity, and expect with the facilities which the new building will give to employ constantly 500 men.

The Pittsburgh Machine Tool Company of Pittsburgh, builders of machine tools, whose works are located in Allegheny, Pa., have a large amount of orders on hand at present, among them being an order for a 60-inch by 20-foot lathe for extra heavy work. This concern also have orders for quite a number of their 32-inch and 42-inch planers, also lathes from 22-inch up to 60-inch swing. The concern contemplate making a large addition to their plant at an early date.

Robert Munroe & Sons, boiler manufacturers, of Pittsburgh have received an order from the Crescent Steel Company, Pittsburgh, for eight 54 x 8 foot boilers. They also have an order for two 150 horse-power boilers for the La Belle Steel Company, Allegheny, Pa., and have recently installed for Mathias & Co., at Manor Station, Pa., one Munroe safety water tube boiler.

The Southern Foundry Supply Company, Birmingham, Ala., had their first annual meeting February 14, when a very satisfactory statement was submitted. New machinery costing \$2500 is being put in, while trade prospects for the year are encouraging.

Hardware.

The Deming Company of Salem, Ohio, manufacture a complete line of spray pumps and nozzles suiting all classes of horticulturists. Their apparatus is adapted to the needs of florists and growers of small garden truck as well as the owners of most extensive orchards. Their Bordeaux and Deming-Vermorel nozzles are used on all sprayers, of which this company make more than a dozen varieties. Their patent kerosene emulsion sprayers have been on the market for several years and are giving the best of satisfaction. The company have general agencies in principal cities, their general Western agents being Henion & Hubbell, Chicago. They manufacture a general line of pumps, including hand, wind mill and power pumps, spray pumps and nozzles, triplex and other power pumps, for operation by gas and gasoline engine, steam engine, electric motor, &c.

The Weatherwax Mfg. Company, formerly located at Bloomsburg, Pa., have removed their entire plant to Boonton, N. J., where they occupy larger and more desirable buildings for the manufacture of their line of hardware. They also have a large and well equipped foundry and are now in shape to receive orders for prompt deliveries, both in light gray iron castings and the manufacture of small articles.

The Laughlin Nail Company of Wheeling, W. Va., with works at Martin's Ferry, Ohio, manufacturers of cut nails and spikes,

shovels, spades, scoops and ditching tools, expect to resume work in their Bessemer steel cut nail factories on Monday, March 12. The nail factories of this concern have been idle for some months, and comprise the largest individual cut nail plant in the United States. About April 1 next the Laughlin Nail Company expect to start their new shovel works, which will manufacture a full line of shovels, spades, scoops and ditching tools.

Miscellaneous.

The Automatic Switch Company, Camden, N. J., have been incorporated with a capital of \$125,000, for the manufacture of railway switches. The incorporators are Frank S. Daugherty, Theodore F. Taylor, Spencer Simpson.

The Garlock Packing Company, Palmyra, N. Y., makers of hydraulic and high pressure packings, &c., have opened an office in Pittsburgh, with Chas. H. Fiske as manager.

The Bessemer Coke Company of Pittsburgh will probably erect 200 bee hive ovens near Masontown, in the Connellsville region. The company are erecting 125 new ovens at Ruffsdale and Badenville.

The Pittsburgh Coal Company of Pittsburgh have a corps of lawyers at work on a task which will take a long time to complete. It is the examination into titles of some 20,000 acres of virgin coal land that the company have purchased. Title abstracts were delivered with most of the 80,000 acres that the Pittsburgh Coal Company secured in merging the constituent interests.

The American Coke Company, an identified interest of the American Steel & Wire Company, have awarded a contract for 100 double blocks of houses to be built in the Connellsville region, the price of which aggregates \$90,000.

The National Wire & Cable Company of Pittsburgh have made application for a charter. The incorporators are David Carlin, C. C. Henry, Wm. J. Brennen, Andrew Johnston and J. O'C. Campbell. The company will manufacture insulated wire from iron and steel, or both, including underground, submarine, aerial cables and electric wires.

The McClintic-Marshall Construction Company of Pittsburgh have applied for a charter of incorporation. The incorporators are C. D. Marshall, H. H. McClintic, A. M. Mellon, R. B. Mellon and W. S. Mitchell. The concern propose to erect a plant and will engage in the construction of bridges, buildings and do a general structural work.

The McCormick Harvesting Machine Company of Chicago, Ill., after an inspection of the Siegrist automatic oiling system at the power house of the Metropolitan West Side Elevated Railway Company of Chicago, have awarded the Siegrist Lubricator Company of St. Louis the contract to equip their two new power houses with their automatic oiling system.

A steel frame trestle, tippie and two tippie houses covered with corrugated iron are being erected for the Rose & Morgan Coal Company, at Bellaire, Ohio, by Wm. B. Scaife & Sons of Pittsburgh, Pa. The latter firm have recently constructed a large steel frame trestle and tippie for the Raton Coal & Coke Company, Raton, New Mexico.

The Snead & Company Iron Works, Jersey City, N. J., have been incorporated, to buy, sell and deal in iron, steel, bronze, &c., with a capital of \$250,000. The incorporators are Wm. R. Snead, Louis R. Staggs, Francis H. McGee and others.

The Pittsburgh Coal Company, known as the Railroad Coal Combine, will erect an extensive plant at Montour Junction, on the Pittsburgh & Lake Erie Railroad, near Pittsburgh, for the purpose of building their own pit cars and repairing their cars, which are now repaired by the various railroad companies. The Montour shops will also be used for the manufacture of machinery needed in the mines operated by the Pittsburgh Coal Company.

Henry B. Shields of the Continental Iron Company, Girard, Ohio, and W. H. Warner, have purchased some coal lands at Smock, Pa., and are building 100 ovens, which will probably be finished May 1 next. The company are organized under the laws of Pennsylvania, and are known as the Colonial Coke Company. The Girard Iron Company, operating Marrie Furnace of Girard, Ohio, have nothing whatever to do with the enterprise.

The Pneumatic Elevator Guard Company, Portland, Maine, have been organized for the manufacture of elevators and fittings. The capital named is \$250,000.

The Elliott Mfg. Company have their new tinware factory in operation at Warren, Ill. They are receiving good orders for their products.

The Youngstown Car Mfg. Company, Youngstown, Ohio, manufacturers of railroad cars of all descriptions, have received a contract from the Pittsburgh Coal Company for repairing and lettering about 2000 coal cars. The cars were formerly the property of the constituent companies absorbed by the Pittsburgh Coal Company. The painting and lettering of these cars is done by a spraying machine, operated by pneumatic pressure.

A new industry will soon be started at Poughkeepsie, N. Y., near the Poughkeepsie Iron Company. The slag from this company's works is to be taken by the Knickerbocker Cement Company and made into cement. Fifty men are now at work preparing the plant for the new work.

The Iron and Metal Trades.

The Editor of *The Iron Age* made a call upon Mr. Carnegie to-day and found him cheery over the business situation. He thinks that the passage of the gold bill, inspiring confidence in the standard and the inevitable expansion of currency following, must maintain prices and probably cause a rise in securities.

The situation in Pig Iron in the Central West, he thinks, must insure a continuance of present prices for finished product during the year.

According to Mr. Carnegie the foreign demand, which would rapidly increase upon even slightly lower prices, serves as a reserve in preventing any serious decline in Iron and Steel.

An analysis of our monthly blast furnace statistics, published elsewhere, illustrates well Mr. Carnegie's point. In what is known as the Central West there were running on March 1 126 blast furnaces, whose total weekly capacity was 191,735 tons, while only 11 furnaces were idle, with a capacity of 8858 tons; and of these only five are fairly modern, and are simply out for relining. During the next three months two, or possibly three, new stacks can enter the list. The stocks in this great section probably do not cover the consumption of a few days, and we know of one large concern in which every effort is being made to use a maximum of Scrap to piece out the supply of Pig Iron.

With the demand so closely pushing the output, in the Central West, any disturbance in the latter naturally creates uneasiness. The strike in the Shenango Valley is therefore regarded with apprehension. The recent high prices paid for Coke show that in that quarter, too, the strain is heavy.

So far as the general Pig Iron statistics are concerned, our figures reflect the disturbances in output, since there has been a decline from last month's maximum. As against that the fact is brought out that furnace stocks have risen from 126,418 tons on February 1 to 162,280 tons on March 1, an increase of 35,862 tons, which falls chiefly on the East and South.

Some heavy sales of Basic Pig Iron have been made by leading Southern producers. These include a block of about 25,000 tons for the St. Louis district, for delivery for the last quarter of the year, and one lot of 5000 tons for export. There has been some movement, too, in the Philadelphia district.

Chicago reports sales of about 80,000 tons of material by the Illinois Steel Company, including one sale of 40,000 tons of Steel Rails at full prices.

Steel Billets generally have been quiet. Some low sales have been made in the East, some of the Steel being placed by a mill in the Central West.

Structural Material is in good demand. Among the contracts of magnitude which are coming up for the near future is a lot of 5000 to 6000 tons for the printing office at Washington. Bids are now going in on the 5000-ton Manhattan power house.

The London clique keeps on boosting the prices of Tin, and in Copper somewhat of a squeeze is in progress in London in Spot Copper. In Spelter there have been some good export sales lately.

A Comparison of Prices.

At date, one week, one month and one year previous.

Advances Over the Previous Month in Heavy Type. Declines in Italics.

	Mar. 7, 1900.	Feb. 28, 1900.	Feb. 7, 1900.	Mar. 8, 1899.
PIG IRON:				
Foundry Pig, No. 2, Standard, Philadelphia.....	\$22.50	\$22.50	\$22.75	\$13.75
Foundry Pig, No. 2, Southern, Cincinnati.....	20.25	20.25	20.25	13.25
Foundry Pig, No. 2, Local, Chicago.....	23.50	23.50	23.50	14.00
Bessemer Pig, Pittsburgh.....	24.90	24.00	24.90	13.50
Gray Forge, Pittsburgh.....	20.85	21.00	21.00	12.75
Lake Superior Charcoal, Chicago....	25.50	25.50	25.50	14.50
BILLETS, RAILS, ETC.:				
Steel Billets, Pittsburgh.....	33.00	33.00	33.00	23.50
Steel Billets, Philadelphia.....	34.50	35.00	36.50	25.50
Steel Billets, Chicago.....	nom	nom	nom	23.50
Wire Rods, Pittsburgh.....	nom	nom	nom	.....
Steel Rails, Heavy, Eastern Mill....	35.00	35.00	33.00	23.00
Spikes, Tidewater.....	2.60	2.60	2.65	1.50
Splice Bars, Tidewater.....	2.20	2.20	2.30	1.20
OLD MATERIAL:				
O. Steel Rails, Chicago.....	19.00	19.00	19.00	9.50
O. Steel Rails, Philadelphia.....	22.50	22.00	23.00	13.25
O. Iron Rails, Chicago.....	23.00	23.00	23.50	16.00
O. Iron Rails, Philadelphia.....	26.00	26.00	26.00	16.00
O. Car Wheels, Chicago.....	24.00	24.00	24.00	15.00
O. Car Wheels, Philadelphia.....	22.00	22.00	22.00	13.50
Heavy Steel Scrap, Chicago.....	17.00	17.00	17.50	9.50
FINISHED IRON AND STEEL:				
Refined Iron Bars, Philadelphia....	2.20	2.20	2.20	1.30
Common Iron Bars, Youngstown....	2.15	2.15	2.15	1.20
Steel Bars, Tidewater.....	2.50	2.40	2.40	1.35
Steel Bars, Pittsburgh.....	2.45	2.25	2.20	1.25
Tank Plates, Tidewater.....	2.15	2.10	2.35	1.85
Tank Plates, Pittsburgh.....	2.05	2.05	2.20	1.60
Beams, Tidewater.....	2.40	2.40	2.40	1.55
Beams, Pittsburgh.....	2.25	2.25	2.25	1.40
Angles, Tidewater.....	2.40	2.40	2.40	1.40
Angles, Pittsburgh.....	2.25	2.25	2.25	1.30
Skelp, Grooved Iron, Pittsburgh.....	1.95	1.97½	1.90	1.40
Skelp, Sheared Iron, Pittsburgh.....	2.25	2.25	2.25	1.50
Sheets, No. 27, Chicago.....	3.20	3.20	3.00	2.30
Sheets, No. 27, Pittsburgh.....	3.00	3.00	2.90	.....
Barb Wire, f.o.b. Pittsburgh.....	3.80	3.80	3.80	2.35
Wire Nails, f.o.b. Pittsburgh.....	3.20	3.20	3.20	1.85
Cut Nails, Mill.....	2.50	2.50	2.50	1.80
METALS:				
Copper, New York.....	16.25	16.12½	16.25	17.75
Spelter, St. Louis.....	4.57½	4.50	4.65	5.80
Lead, New York.....	4.70	4.70	4.70	4.80
Lead, St. Louis.....	4.57½	4.57½	4.60	4.15
Tin, New York.....	34.25	31.50	29.25	23.85
Antimony, Hallett, New York.....	9.75	9.75	9.75	10.00
Nickel, New York.....	38.00	38.00	38.00	38.00
Tin Plate, Domestic, Bessemer, 100 lbs New York.....	4.84	4.84	4.84	.....

Chicago. (By Telegraph.)

Office of *The Iron Age*, 805 Fisher Building, }
CHICAGO, March 7, 1900. }

The general market is exceedingly quiet. The labor troubles continue in the local building trade, causing almost complete stagnation in building operations, and in addition the machinists have struck in practically all the city shops. The local demand for Iron and Steel is seriously affected and great apprehension prevails that business will be extremely dull in Chicago for some time. This place has been selected as the battle ground for the Machinists' Union, and it is likely that the struggle will be protracted. The employers are maintaining a united front and the only hope of an early termination of the difficulty is in the collapse of the strikers' movement. A bright contrast to the gloomy local conditions is presented by the remarkably large volume of business booked by the Illinois Steel Company. During the week they have entered orders for about 80,000 tons of finished product, and their works are in most departments filled to their full capacity for the whole of this year. The company are therefore able to regard the situation with much satisfaction from their standpoint.

Pig Iron.—The transactions in this immediate locality are few and far apart. Some inquiries are being received from foundrymen making specialties, but very little business is in sight from the general trade. The labor troubles in the building trades have caused the architectural foundries to suspend operations almost entirely. The machinists' strike which is now on is also expected in a short time to cause other foundries to discontinue operations. It is necessary to look outside of this city for anything of an encouraging character. The Southern furnace companies are now beginning to feel the impulse of a demand for export, which it is hoped will take any surplus that might otherwise be forced upon this market and demoralize prices. One lot of 5000 tons has already been sold at the full schedule price for shipment from Birmingham, and negotiations are under way for a much larger quantity. A sale of over 25,000 tons of Southern Basic Iron has been made at St. Louis for the last quarter of this year. Furnace companies here and at other points supplying this district are still

suffering from a scarcity of Coke, which cuts down the production of Pig Iron. Sales agents are weighing the different influences now at work in the trade and are still taking a hopeful view of the situation and believe that prices will be sustained until the spring opens up and the renewed demand is then felt from the prosecution of outdoor activity. We quote for cash as follows:

Lake Superior Charcoal.....	\$25.50 to \$26.00
Local Coke Foundry, No. 1.....	24.50 to 25.00
Local Coke Foundry, No. 2.....	23.50 to 24.00
Local Coke Foundry, No. 3.....	22.50 to 23.00
Local Scotch, No. 1.....	25.00 to 25.50
Ohio Strong Softeners, No. 1.....	24.50 to 25.50
Southern Silvery, according to Silicon..	25.50 to 27.00
Southern Coke, No. 1.....	22.85 to 23.35
Southern Coke, No. 2.....	21.85 to 22.35
Southern Coke, No. 3.....	20.85 to 21.30
Southern Coke, No. 1 Soft.....	22.85 to 23.35
Southern Coke, No. 2 Soft.....	21.85 to 22.85
Foundry Forge.....	20.85 to
Gray Forge and Mottled.....	20.85 to
Southern Charcoal Softeners, according to Silicon	21.85 to 25.85
Alabama and Georgia Car Wheel.....	24.85 to 25.85
Malleable Bessemer.....	25.00 to 26.00
Standard Bessemer.....	..... to
Jackson County and Kentucky Silvery, 8 per cent. Silicon.....	32.30 to 32.80

Bars.—The number of orders for Bar Iron increased perceptibly during the past week, but demand for small lots for immediate delivery continues to be the feature of the trade. The large consumers are not placing contracts to any extent, but are awaiting developments. The independent mills are securing enough work to keep them running on full time and prices are therefore well maintained. A little better trade is also reported in Soft Steel Bars, but in this branch of business orders are also for small amounts. Prices for mill shipment continue at 2.30c. to 2.40c., Chicago, for Common Iron, 2.35c. to 2.45c. for Soft Steel Bars, and 2.65c. for Bands. Jobbers are feeling the effects of the machinists' strike and report their city trade falling off. They continue to have a good demand from the country and note an increase in their sales in some directions. They quote 2.90c. for Bar Iron, 2.50c. to 2.60c. for Soft Steel Bars, and 4c. for Norway and Swedish Iron.

Cars.—Quite a number of car orders are in the market and car builders seem to be favored with exceptionally good prospects for continued activity. Excellent orders are being placed for car material, particularly for Axles and Shapes. Steel Axles of standard specifications are now held at 3½c., Chicago.

Structural Material.—While the labor troubles in the building trade have stopped operations coming up in regular course of business, a few projects are now in view which are accompanied by special conditions, which make it obligatory that they should be carried out. A large building, for instance, which will take about 3,000 tons must be carried through this spring or the owners will forfeit a permit of a valuable character issued some time since. Mill shipments are quoted as follows, Chicago delivery: Beams, Channels and Zees, 15-inch and under, and Angles, 3 to 6 inches, 2.40c.; Beams, &c., 18 inches and over, and Angles over 6 inches and under 3 inches, 2.50c.; Tees, 2.45c.; Universal Plates, 2.30c. to 2.40c. Local yards are quoting small lots of Beams and Channels at 2.90c. to 3c.; Angles, 2.70c. rates, and Tees, 2.85c.

Plates.—The demand is quite light both for mill shipments and from store. Some orders are being placed by those whose necessities compel them to keep stocked with Plates, but the trade generally are not buying. Prices continue to recede. Plates have fallen from their proud position of leading the line of Iron and Steel products until they are now relatively cheap. Quotations on mill shipments, Chicago delivery, are as follows: Tank, 2.30c. to 2.40c.; Flange, 2.50c. to 2.60c.; Marine, 2.80c. to 2.95c.; Fire Box, 3.30c. to 5.50c. Jobbers continue to quote Tank from store at 2.70c. to 2.80c., and Flange, 3c. to 3.25c.

Sheets.—Some of the large buyers have decided not to wait any longer and have placed contracts for fall delivery, but most of them are still waiting further developments. The Sheet mills are now shutting down to take stock preparatory to being acquired by the consolidation. They will probably be shut down for some time for the purpose of strengthening the market. The owners of the mills are quite well satisfied to discontinue manufacturing operations, as they report that even at the present advanced prices they see no profit in converting their raw material into finished shapes. Mill shipments are held at 3.20c. to 3.30c., Chicago, for No. 27 Black, and 75 per cent. off for Galvanized Sheets. Jobbers quote small lots from stock at 3.45c. for No. 27 black, and 70 and 10 per cent. off for Galvanized.

Merchant Steel.—Some good orders have been placed for specialties, but mostly with consumers out of the

city. The city trade is quiet owing to the machinists' strike. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery Steel, 2.95c. to 3.05c.; Smooth Finished Tire, 2.80c. to 3c.; Open Hearth Spring Steel, 3.60c. to 3.75c., base; Toe Calk, 3.20c. to 3.50c., base; Sleigh Shoe, 2.75c. to 3c.; Cutter Shoes, 3.45c. to 3.65c.; Ordinary Tool Steel, 7c. to 7½c.; Special, 13c. and upward.

Billets.—Considerable tonnage of both Bessemer and Open Hearth Billets has recently been placed. Prices of Bessemer Billets cannot be quoted on a Chicago basis owing to special circumstances, but Open Hearth Axle Billets have been sold here at a reduction under recent prices and are now quoted at \$38.

Rails and Track Supplies.—The demand for Standard Sections of Steel Rails has taken a decided spurt. One transaction closed the past week called for 40,000 tons for delivery this year. Several other sales were made, running up to a good tonnage. Full prices were obtained, even the large contract having been made at \$35 at mill. The inquiry is excellent for further quantities in lots of 5000 tons and under. Many inquiries are coming from new projects, such as electric roads between towns and also from street railways in cities. The local mills are now so full of work that a great deal of inquiry is being diverted to mills in other localities. Prices of Standard Sections are continued at \$35 to \$40, according to quantity. Sales of Light Rails are keeping up very well. A good sale was made the past week for export to Mexico. Prices are continued at \$35 to \$40, according to section. An excellent business is being done in Track Fastenings as an accompaniment to the active trade in Steel Rails. Prices of Track Fastenings are as follows: Steel Fish Plates, 2c. to 2.25c.; Iron Fish Plates, 2.30c.; Spikes, 2.65c. to 2.75c.; Track Bolts, with Hexagon Nuts, 3.95c. to 4c.; Square Nuts, 3.80c. to 3.85c.; Steel Links and Pins, 3.20c.; Iron Links and Pins, 3.15c.

Old Material.—Considerable business is reported by the local dealers. The leading consumer of Mill Scrap is out of the market, but some of the independent establishments have been rather free buyers. The supply of Scrap appears to have been pretty well cleaned up, and the heavy snow which now covers the country is likely to cause some interference in collecting fresh supplies. Cast Scrap is extremely dull. Approximate market prices are as follows, per gross ton:

Old Iron Rails.....	\$23.00 to \$24.00
Old Steel Rails, mixed lengths.....	19.00 to 20.00
Old Steel Rails, long lengths.....	21.00 to 21.50
Relaying Rails.....	28.00 to 30.00
Old Car Wheels.....	24.00 to 24.50
Heavy Melting Steel Scrap.....	17.00 to 18.00
Mixed Steel.....	12.50 to 13.00
Iron Fish Plates and Angle Bars.....	23.00 to 23.50
Steel or Mixed Iron and Steel ditto.....	18.50 to 19.00
Iron Car Axles.....	26.50 to 27.00
Steel Car Axles.....	23.50 to 24.00
No. 1 Railroad Wrought.....	22.50 to 23.00
No. 2 Railroad Wrought.....	19.00 to 19.50
Shafting, Iron and Soft Steel.....	19.00 to 20.00
No. 1 Wrought.....	16.00 to 17.00
No. 1 Country Wrought.....	14.00 to 15.00
No. 1 Mill.....	11.00 to 11.50
No. 2 Mill.....	7.50 to 8.00
No. 1 Bushelling.....	13.50 to 14.00
No. 2 Bushelling.....	9.50 to 10.00
Iron Car Axle Turnings.....	14.00 to 15.00
Soft Steel Car Axle Turnings.....	13.00 to 13.50
Machine Shop Turnings.....	12.00 to 12.50
Wrought Drillings.....	11.00 to 11.50
Cast Borings and Drillings.....	8.50 to 9.00
Mixed Borings and Turnings.....	8.50 to 9.00
No. 1 Boilers, cut.....	12.50 to 13.00
No. 2 Boilers, cut.....	6.00 to 6.50
Boiler and Ship Scrap.....	15.00 to 16.00
No. 1 Cast.....	13.50 to 14.00
No. 2 Cast.....	9.00 to 9.50
Railroad Malleable Cast.....	15.00 to 15.50
Agricultural Malleable Cast.....	13.50 to 14.00

Metals.—Lake Superior Copper is a little firmer, car-load lots now being quoted at 16¼c. Casting brands are unchanged at 16¼c. Pig Lead is quiet but firm at 4.65c. for Desilverized, and 4.75c. for Corroding.

The American Foundrymen's Association has decided to hold its annual convention in Chicago this year, but the time has not yet been fixed. It will probably be the latter part of May or the beginning of June.

M. Cohen, dealer in Scrap Iron, has removed his main office to 304 Stock Exchange Building, Chicago, but will retain a branch office at his old location at Muncie, Ind.

The report is absolutely untrue that the Republic Iron & Steel Company have shut down all their mills in Indiana as a defiance to the State authorities for endeavoring to enforce the weekly payment law. The matter is still under negotiation. Pending the result of this, the mills are all running except such as have been obliged to shut down temporarily for regular causes, such as repairs, &c.

Pittsburgh.

Office of *The Iron Age*, Hamilton Building, }
Pittsburgh, March 7, 1900. }

(By Telegraph.)

Pig Iron.—There is a good deal of activity in Bessemer Iron, some of the large Steel interests making purchases from the furnaces right along at the full price of \$24, Valley. The four furnaces at New Castle, Red Jacket, Raney & Berger, Rosena and Atlantic are banked on account of a strike. Small stray lots of Bessemer might be bought at about \$24.50, Pittsburgh, but most of this Iron has been cleaned up. Mill Iron is weak, and \$21, Pittsburgh, has been shaded. Consumers of Foundry Iron are buying only in small lots and for immediate requirements. No. 2 is about \$23, Pittsburgh. We quote: Gray Forge, \$21; Bessemer, \$24, both at Valley furnace; No. 2 Southern Foundry, \$22.25 to \$22.50; No. 2 Local Foundry, \$23; Southern Gray Forge, \$20.50; Local Forge, \$21; Bessemer, in small lots, \$24.50; in large lots from furnaces, \$24, Valley, or \$24.90, Pittsburgh. We note a sale of 15,000 tons of Bessemer at \$24, Valley, also 500 tons of local Forge at \$21, Pittsburgh.

Steel.—The market continues dull, and we quote at \$33 to \$34, at mill. There is very little doing, consumers placing orders only for small lots and immediate requirements.

Muck Bar.—The market is very dull and we quote standard grades at \$32.50, Pittsburgh.

Sheet Bars.—There is practically nothing doing in Sheet Bars, and we quote nominally at \$36 at mill for long lengths. It is claimed that this price is being rigidly held.

(By Mail.)

There is nothing of special interest to note in the Iron trade this week. The volume of business is only fairly satisfactory, but with old contracts keeps the mills pretty well filled up. Here and there a plant is idle owing to the fact that there is no demand for its product. Prices, generally speaking, are firm, but in spots the market is weak. The most active commodity just now is Coke, for which fancy prices are being paid. Pig Iron is also very strong at \$24, Valley, for large lots. Consumers of Steel continue to buy in small lots for immediate requirements, and prices are about \$33 to \$34 at mill. In Finished Material there has been no change in prices in the past week, with the exception of Pipe, which under the new list adopted on March 1 carried a slight advance. Every day that goes by makes stronger the belief that present values on Iron and Steel products will likely be held until July 1, if not later.

Ferromanganese.—Small lots continue to be quoted at \$125 at mill. On large lots this price might be shaded.

Structural Material.—The market for Structural Shapes is in very satisfactory condition. A local mill has sent in a bid on the Manhattan power house calling for close to 5000 tons. Other contracts are coming up, and it is likely a good deal of business will be placed in a short time. The mills rolling a full line of Structural Shapes are well filled up for the next two or three months. Prices have not changed and we quote: Beams and Channels, 15-inch and under, 2.25c.; over 15-inch, 2.35c.; Angles, 3 to 6 inch, 2.25c.; Angles, smaller than 3-inch and larger than 6-inch, 2.35c.; Flat Bars, 2.25c.; Pins, 2.25c.; Grooved Rolled Plates, 2.30c. to 2.35c.; Universal Mill Plates, 2.30c. to 2.40c.; Tees, 3-inch and larger, 2.30c.; Zees, 3-inch and larger, 2.25c., all f.o.b. Pittsburgh.

Plates.—The Plate trade does not show improvement, either in demand or price. For a desirable order on narrow Plates it is probable 2c. at mill would be done. We quote the market on Tank, 1/4-inch and heavier, at 2.10c. to 2.25c.; Shell, 2.35c. to 2.40c.; Flange, 2.40c. to 2.50c.; Marine, 2.50c. to 2.60c.; Fire Box, 2.75c. to 3.25c., depending on quality.

Steel Bars.—Prices on Steel Bars, as arranged some time since by the mills, have been reaffirmed, and, we are advised, are being rigidly held. The mills now prepay freight on bars and quote delivered prices only. There is a fairly good demand, but not as large as expected. Buyers have evidently decided to place orders for small lots and immediate requirements. We quote Steel Bars at 2.25c., Pittsburgh, to which freight to destination should be added. There is a fair demand for Iron Bars, but mostly for small lots. We quote Iron

Bars at 2.15c., Valley mill, in carload lots. We quote Hoops and Bands at 2.55c. in carload lots and 2.70c. in small lots, all f.o.b. Pittsburgh; terms, 30 days net cash.

Sheets.—There is nothing of interest to report. Work on the details of the Sheet combine is going on and it is hoped to have the deal put through by April 1, or not later than May 1. We quote No. 27 Black Sheets, box annealed, at 3c. to 3.05c.; No. 28, 3.05c. to 3.10c.; Galvanized Sheets, 75 per cent. off, with 15c. freight.

Merchant Steel.—The market is quiet and we hear reports of low prices being made. We quote: Soft Machinery Steel, 2.50c. to 2.60c.; Tire, 2.40c. to 2.50c.; Toe Calk, 2.75c. to 2.85c.; Open Hearth Spring, 3.25c.; Crucible, 3.50c.; Hammered Lay Steel, 4c. to 4.25c.; Rolled Lay, 3.50c. to 3.75c.; Plow Slabs, Bessemer, 2.50c.; Open Hearth, 2.75c.; Tool Steel, 7c. and upward, on which freight allowance is made not to exceed 25c.; terms, except Tool Steel, 30 days net cash.

Pipes and Tubes.—There is a good deal of inquiry for Pipe, but some of the small independent mills seem to be anxious for tonnage. A great deal of foreign business is being placed in Pipe, one recent order calling for a large tonnage. Quotations to jobbers in carload lots, f.o.b. Pittsburgh, are as follows: Black Merchant Pipe, 1/4, 1/2 and 3/4 inch, 25, 10, 5 and 2 1/2 per cent.; 1/2-inch, 25, 10, 10, 10, 5 and 2 1/2 per cent.; 3/4-inch, 30, 10, 10, 10, 10, 5 and 2 1/2 per cent.; 1 to 4 inch, inclusive, 30, 10, 10, 10, 10 and 10 per cent.; 4 1/2 to 12 inch, inclusive, 30, 10, 10, 10 and 10 per cent.; Galvanized, 15 points less discount in the base; if Black base is 30 per cent. Galvanized base will be 15 per cent. On Screw and Socket Casing the new discounts are as follows: 2-inch, 20, 5 and 3 1/2 per cent.; 2 1/4 to 2 3/4 inch, inclusive, 20, 10, 10 and 4 per cent.; 3 to 4 1/2 inch, inclusive, and 8 1/4 to 12 1/2 inch, inclusive, 30, 10, 10 and 4 per cent.; 4 3/4 to 7 1/4 inch, inclusive, 30, 10, 10, 10 and 6 1/2 per cent.; 7 1/2-inch, 30, 10, 10, 10 and 1 per cent.; Inserted Joint 10 per cent. higher than Screw and Socket. On Iron Boiler Tubes the discounts are as follows: 1 to 1 1/2 inch, inclusive, 20, 5 and 1 per cent.; 1 3/4 to 2 1/4 inch, inclusive, 20, 10 and 2 1/2 per cent.; 2 3/4 to 8 inch, inclusive, 30, 10, 10, 10 and 1 1/2 per cent.; 2 1/2 and 9 to 13 inch, inclusive, 30, 10 and 4 1/2 per cent.; Steel Boiler Tubes about 5 per cent. net less than Iron.

Skelp.—The Skelp market is showing a little more activity so far as sales are concerned. Grooved Iron has sold in the past week at 2c. We quote Grooved Steel Skelp at 1.95c.; Grooved Iron Skelp, 2c.; Sheared Iron and Steel, 2.25c. to 2.35c., depending on specifications and size of order. Boiler Tube Skelp is quoted at 2.10c. to 2.25c.

Connellsville Coke.—Last week, out of 20,074 ovens in the Connellsville region, 19,683 were active and 391 idle, the output having been 219,221 tons. Before many more weeks Cochran Brothers will have the Spring Grove Works in blast, and 50 more ovens will be added to the list later on at the Oliphant plant of the H. C. Frick Coke Company, and 50 more at the United Works of the same company. W. J. Rainey will fire the 50 new ovens almost completed at Mt. Braddock, and also the 50 new ovens being built at the Rainey plant. Very high prices continue to be paid for Coke, and it is hard to get at any price. In the past week from \$3.50 to \$4 a ton has been paid for Furnace Coke, while Foundry has sold at \$4.25 to \$4.50 a ton.

Philadelphia.

Office of *The Iron Age*, Forrest Building, }
Philadelphia, Pa., March 7, 1900. }

(By Telegraph.)

There is no special change from the report sent by mail. An undertone of strength appears to be developing, particularly in Pig Iron; although buying by local interests is still very conservative. A good deal of Bessemer is being shipped to the West, and more is wanted if it could be had, but for the present furnaces are pretty well sold up. Several thousand tons of low priced Mill Irons have also been taken by local buyers, so that furnaces are in a good position to make a firm stand. Finished Material is about the same as last week, although there is a good demand for everything. Old Material is in full supply, but Steel brings full prices, and appears to be much wanted.

(By Mail.)

A week ago there seemed to be a fair chance that the Iron market would soon develop some definite character, but so far there is no more indication of it than there was at the time mentioned. Business is not in bad con-

dition by any means, and the trade would be well satisfied if they could feel sure of its continuance on the present basis of supply and demand, but because it does not get better there is a latent fear that it may soon get worse. This, indeed, is one of the chief factors that prevent improvement. Purchases are on the smallest scale possible, and while this continues to be the attitude of buyers one of the most essential elements of improvement is wanting. The situation is so entirely different to anything that has been experienced in the past, however, that the trade are unable to gauge it as in former times. So many of the primary materials are under control of trusts and other allied interests that conditions no longer control prices, but prices are controlled by the mandates of great corporations. It does not necessarily follow that they are controlled to the prejudice of favorable market conditions, but they do prevent any clear or distinct opinions being formed as to what the actual conditions are. The natural tendency of prices might be toward a lower level, but if the trusts decree otherwise, otherwise it must be, in defiance of conditions. They can place arbitrary prices on raw materials, which make it practically impossible for individual concerns to go below trust prices. This may perhaps turn out to be a good thing by enforcing steady prices until the real merits of the situation are developed. It is quite too soon yet to say whether such manipulation is beneficial or the reverse; the point to be made clear is that no man's judgment is worth much unless he knows what the trusts are going to do, which is a very different thing to having a full and clear view of the business situation unobstructed by overshadowing influences such as mentioned. In this market manufacturers and their agents are waiting for the "troubling of the waters," and merchants and consumers are doing much the same thing. All that any one is sure of is that consumption is large, that prospects for its continuance are good and that stocks in both first and second hands are unusually small.

Pig Iron.—It is difficult to find the slightest change in the condition of the Pig Iron market as defined in last week's report. Buyers are stubbornly indifferent, and sellers are stubbornly firm on good Irons; and in what direction the next turn will be (when it comes) is as hard to say as at any time for weeks past. Sellers seem to have got to minimum figures for the present, and unless something unforeseen occurs there is as little prospect for a decline as there is for an advance. A good deal of interest is being manifested in regard to the condition of furnaces, a statement of which is expected to appear in this week's issue of *The Iron Age*; and if any marked change is shown prices will be probably be influenced accordingly. Stocks in second hands, with few exceptions, are certainly down to a low point, so that even if the furnaces show an increase it ought not to affect the market much; while if there should be a decrease it is pretty sure that it would be reflected immediately, and on the first signal that prices were likely to be higher buyers would be very likely to run in immediately. At outside points a better demand is reported, and for the moment markets at a distance appear to be relatively stronger and more active than they are hereabouts. It cannot be said that there are any immediate prospects of betterment in this vicinity; but, of course, if the Western and New England markets hold firm it will not be long before we fall into line. In the meanwhile, however, while there is a great deal of inquiry, and a considerable business in small lots, the general disposition is to sail close to the wind pending further developments. Prices cover the following range, the highest and lowest would be about as follows for seaboard or nearby deliveries, and 25c. to 50c. less for deliveries within a radius of 100 miles South or West: No. 1 X Foundry, \$24 to \$25; No. 2 X Foundry, \$22.75 to \$23.50; No. 2 Plain, \$21.75 to \$22.25; Standard Mill Iron, \$19.50 to \$20; Basic, \$21.75 to \$22.25; Bessemer, nominal, \$22.50 to \$23; Low Phosphorus, \$27 to \$28, and Charcoal Iron, \$27 to \$29.

Billets.—There is very little doing; asking prices are \$35.50 to \$36, but the right kind of orders could no doubt be placed at \$35 or less.

Plates.—There is little or no change in this department. The demand is good, and most of the leading mills are kept pretty busy, but they are not getting much work ahead, hence the weakness and irregularity in prices. There is a great deal of work in prospect, but the capacity for output is steadily increasing; and it will require a vast business to enable all the mills to run as full as they would like to do. This no doubt is having its effect on keeping prices down, but with anything like general improvement prices of Plates would no doubt quickly respond. For seaboard or equivalent points prices are about as follows: Steel Plates, ¼-inch and thicker, 2.10c. to 2.15c.; Shell, 2.25c. to 2.30c.; Flange, 2.50c. to 2.60c.; Fire Box, 3c. to 3.10c.; Charcoal Iron Plates, C. H. No. 1, 3c.; Best Flange, 3.50c.; Fire Box, 4c.

Structural Material.—There is an excellent demand from all classes of consumers, shipyards, bridge shops, structural shops and all others who require that class of material. The mills are kept full up all the time, and while the pressure for deliveries is not as great as it was during last summer and fall, there is quite a probability that such will be the case before many weeks are past. Prices are firm as last quoted: Beams and Channels, 15 inches and under, 2.40c.; Angles, 3 to 6 inches, 2.40c.; Zee Bars, 2.40c., f.o.b. Philadelphia; Angle Bulbs and Deck Beams, 2.68c.; Tees, 2.45c.

Bars.—There is a heavy demand, and mills are kept full of work in most of their departments. There appears to be no falling off in the consumption of Bars, consequently prices are steady and firm, although once in a while outside mills make small concessions, but as a rule the market shows great strength, and prospects are of the most encouraging character. Prices about as follows for Philadelphia or nearby deliveries. Ordinary Iron, 2.07½c. to 2.10c.; Refined Iron, 2.20c.; Test Iron, 2.30c.; Steel Bars, 2.50c. to 2.60c.

Sheets.—There is a great deal of inquiry, and buyers would like to have firm prices named for large lots for delivery through the summer and fall months. Manufacturers are very conservative, however, and discriminate very closely before committing themselves to heavy engagements, as there is a strong impression that prices of Sheets will be higher in the near future. Last week's quotations are continued for best Sheets—viz. (Common Sheets two-tenths less): No. 10, 2.70c. to 2.80c.; No. 14, 2.95c.; No. 16, 3c.; Nos. 18-20, 3.05c.; Nos. 21-24, 3.15c.; Nos. 26, 27, 3.25c.; No. 28, 3.35c. to 3.45c.

Old Material.—There is a stronger tone to the market, and prices average higher than for some weeks past. The improvement is largely confined to Steel Scrap, although Borings and Turnings and No. 1 Wrought Scrap are all bringing a little more money. Bids and offers for deliveries in buyers' yards are about as follows: Choice Railroad Scrap, \$23 to \$25; No. 1 Yard Scrap, \$19.50 to \$20.50; No. 2 Light Scrap, \$13 to \$14; Machinery Cast, \$17.50 to \$18; Heavy Steel Scrap, \$22 to \$22.50; Old Iron Rails, \$26 to \$28; Old Steel Rails, \$22.50 to \$23.50; Wrought Turnings, \$15.25 to \$15.75; Cast Borings, \$13.75 to \$14; Old Car Wheels, \$22 to \$23; Iron Axles, \$26 to \$28; Steel Axles, \$27 to \$29.

St. Louis (By Telegraph.)

Office of *The Iron Age*, 1205 Chemical Building,
St. Louis, March 7, 1900.

Pig Iron.—Trade in this territory continues featureless. Very little new Iron is being contracted for. Foundrymen are apparently content to defer purchasing until forced to; but, meanwhile, it is said by some interests that Iron is harder to get than in some weeks past. Diligent inquiry among consumers in this region brings to light no offerings under market from furnaces; in fact, no activity is shown to effect sales, the claim being made that free Iron is to be had in but extremely small lots. Export buying from Southern furnaces has been spoken of, and through private advice we learn that a very desirable tonnage has been secured for shipment to British ports. It is claimed this class of trade nets furnaces same as domestic transactions. Export inquiries for even larger amounts follow this. Germans are said to have contracted for all spare Iron of British furnaces they could get hold of for this year's delivery. In consequence, it may be that Great Britain will have to come here for uncovered wants. We quote on cars St. Louis:

Southern, No. 1 Foundry.....	\$22.25 to \$22.50
Southern, No. 2 Foundry.....	21.25 to 21.50
Southern, No. 3 Foundry.....	20.25 to 20.50
No. 1 Soft.....	22.25 to 22.50
No. 2 Soft.....	21.25 to 21.50
Gray Forge.....	20.00 to 20.25

Bars.—With no rise in the market to stimulate purchasing the trade presented is of a steady nature. Holders of low cost material are realizing on it, and for the present only presenting specifications to round out assortments. Consumers' orders show no marked change, but every indication points to a year of good safe business. Mill quotations on Iron remain at 2.35c., base, half extras, East St. Louis, in carload lots. No change has taken place in jobbers' prices, which are 2.75c. to 2.90c., base, full extras, as to quantities and assortment. Steel Bars are now definitely quoted by mills at 2.40c., base, half extras, in carload lots, East St. Louis. Jobbers' price is 3c., full extras.

Rails and Track Supplies.—Railroads suffered severely through the heavy snow and sleet storm last week. Heroic efforts were made to keep lines open, and in consequence regular track work was put aside. The usual run of orders for miscellaneous supplies is

had. We quote Splice Bars, Steel, 2.55c.; Iron, 2.55c.; Track Bolts, with Square Nuts, 3.60c.; with Hexagon Nuts, 3.80c.; Spikes, 2.75c.; Steel Links and Pins, 3.20c.

Pig Lead.—Scattering brands are bid for at 4.57½c.; Chemical salable at 4.60c. Movement is very light. Lead Ore brought \$27.50 per 1000 lbs.

Spelter.—Inquiries for Spelter have been more free considering that demand for the last two weeks was dead dull. Since last report prices fell off to 4.40c., nominally, but recovered; and sales made to-day were at 4.47½c. on increasing London values. Even at present prices from 2½ to 5 points better can be secured for export, as against domestic transactions. It is reported that 1500 tons have been engaged for export during March and April. There is now quite a strong bull movement apparent among operators; 4.25c. at works is practically what has been realized the past week or ten days, which is considered below cost of smelting. Zinc Ore sold as high as \$33 per ton, but smelters say \$30 more nearly represents their top purchases. About 50 per cent. of the mines in Galena camps are closed down, attributed to unprofitable prices of Ore.

Advices just had state that sales of Tennessee Company's Basic Iron have just been closed, amounting to 35,000 tons. The tonnage largely applied to local wants, for which full market prices were secured. A portion of the above was for export, and it is stated that the prices obtained were on a parity with domestic quotations. Additional inquiries are at hand for heavy amounts of Foundry grades for foreign markets, which will doubtless be closed before many days.

Cleveland.

CLEVELAND, March 6, 1900.

Iron Ore.—The unfavorable weather of the past week, which for a time virtually suspended communication of all kinds throughout a considerable portion of Northern Ohio, interfered seriously with the shipment of Ore from the docks at Lake Erie ports to the furnaces. This class of shipments has been very heavy all winter, as, with the exception of a few weeks, the weather has been almost uniformly favorable for the handling of Ore. All the dock managers have, however, been complaining of late of the scarcity of cars, and if the railroads could take somewhat better care of their end of the business there is no doubt but that the docks would be in better shape by the opening of navigation than they have been at that time in a number of years past. The demand for Ore at all the furnaces continues heavy, and every effort is being made to send it forward as rapidly as possible. If the opening of navigation is as late as it was last year there can be no doubt but that most of the docks will be in excellent condition; but it must be remembered in this connection that, whereas no Ore was received at Lake Erie ports last year until May 5, many of the Ore men are figuring on starting shipments from Escanaba this year about April 20. The plans for receiving the Ore upon its arrival at lower lake ports go actively forward. Most of the new machinery, with the exception of the automatic unloaders at the Carnegie docks at Conneaut, is already in place. The Minnesota Ore dock at Buffalo, which is managed in this city, will be more than doubled in capacity next season. The adjoining property of the Buffalo Dock Company, with a frontage of 1200 feet, has been leased, and the entire unloading plant in service there will be reconstructed and enlarged. The Minnesota Company handled about 800,000 tons of Ore at Buffalo last season, and so far exceeded their own dock capacity that the Ore had to be scattered about on adjoining docks. It is now certain that the cost of operating Ore vessels will be much higher this season than it has been for several years past. The price of fuel has not been fixed, but a marked increase is sure to be made, one that will probably mean an increase of \$100 per trip in the fuel bills of the large steamers. Nothing has been done by the underwriters regarding hull or cargo insurance rates. A slight advance is talked of. Many of the prominent vessel interests claim that they will operate their tonnage without insurance unless they can secure a more favorable policy than that of last year. A few small tows were chartered during the past week to carry Ore from Lake Superior ports at the old season rates, but shippers are practically through with season chartering, and, aside from a few small blocks at the head of the lakes, there is no Ore on the market. There is some inquiry for first trip cargoes, but shippers are not ready to make "wild" charters.

Pig Iron.—Each week seems to be to a considerable extent a duplicate of its predecessor. Sales of Bessemer for the third quarter continue in fair volume, and the

situation may well be said to be strong at the quotation fixed by the association, \$24 in the Valley. Of the sale of 100,000 tons of Bessemer about a week ago fully 60,000 tons were for the third quarter, and, inasmuch as this represents nearly one-third of the product of the association furnaces, it will be seen that there is a strong probability that the whole supply will be cleaned up within two or three weeks—probably before the market in Foundry grades opens up. So far as can be learned the majority of the consumers of Foundry Iron have their requirements covered up to April or May. The inquiries which have already come in anticipate in many cases purchases of supplies for the second quarter or for the second and third quarters combined, but in some cases figures have been asked for material running up to the close of the year. The unsatisfactory Coke supply, both as to quantity and quality, is having its effect in curtailing production. The banking of furnaces for intervals of two or three days appears to be increasing rather than diminishing in frequency. The advances in the price of Coke—another addition of 25c. was made during the past week—will not be without effect in influencing higher quotations for Pig. Gray Forge continues at the old quotation. There is little activity in Lake Superior Charcoal. None is to be found on Lake Erie dock, but in some urgent cases all rail shipment is being made from Lake Superior points clear through to Eastern consumers. As a result of the European market catching up to us and the resumption of exports there is very little Southern Iron coming into this territory. Prices are practically unchanged, however.

Finished Material.—The outlook in the Finished Material market has shown during the past week quite an encouraging improvement. Order mail is not perceptibly heavier, but the volume of inquiry shows an increase. Strangely enough, in view of the prevailing weather conditions, this has been particularly apparent in Structural for building operations. The high prices of material are likely to curtail considerably extensive building operations planned by the Cleveland school authorities. Bids opened this week for the construction of a new school building were on an average (69 bids were submitted) about 20 per cent. higher than those received about a year ago, when a similar building was let. The Plate market is in worse condition than ever. It is understood that sales have been made at 2.20c., Cleveland, and even lower. The vessel material, against which the American Shipbuilding Company have been sending out specifications, has not been placed, with the exception of one boat. Local sales agents have changed their prices for Bar Iron out of stock to 2.40c., and for Bar Steel to 2.65c. This is, of course, quite a heavy reduction, but it is denied that it indicates any weakening of market conditions. The agents ascribe their action to the fact that the mills are rapidly getting caught up with orders and that the reduction was necessary in order to prevent a portion of the business being taken away from them by the mills. There has been a general change in Sheet quotations. In the case of No. 19 and lighter grades there is an advance which amounts in many cases to 5c. and 10c., while in the case of heavier grades a reduction has been made. The market can by no means be said to be active, however. There seems to be a general disposition to regard the new consolidation as an experiment and to hold off until its strength has been demonstrated. The new Pipe list provides, of course, for innumerable changes in discounts, and the changes appear to have been fairly well taken. The city officials opened bids last week for furnishing the city of Cleveland with Water Pipe of various sizes. The Camden Iron Works bid \$29.83 for all sizes and the United States Iron Pipe & Foundry Company \$28.60. Nothing of moment has developed in the Rail market, although there is some inquiry from projectors of Interurban electric lines.

Old Material.—The market appears to be waiting on the Pig Iron situation, and buyers show no disposition to cover for more than immediate requirements. Prices are fairly well maintained on those grades in which there has been any movement. The supply is more than equal to the demand and improving somewhat.

Cincinnati. (By Telegraph)

Office of The Iron Age, Fifth and Main streets, }
CINCINNATI, March 7, 1900. }

Trading in Pig Iron throughout the past week has been about what might have been expected from the general conditions surrounding the business just at present. The demand for Foundry grades, for delivery during the six months, continues to be light, though for that matter pretty well up to the certain supply. The tonnage the past few days has been quite fair in Coke, Malleable and Basic grades. There have been some very fair orders for Car Wheel stock. One sale of 1000

tons Ohio Malleable at \$22 at the furnace is reported. The outlook appears to be for a continuance of quiet conditions. In regard to prices the market must still be characterized as strong, with many selling interests holding firmly to the maximum quotations herewith. Some Iron is being offered and sold on the basis of \$17.25, Birmingham, for No. 2 Foundry, and some scattering lots as low as the minimum prices. Sellers insist that no great quantity of Iron can be bought at the minimum figures, and say that each week which passes brings buyers just that much nearer to the necessity of purchase and consequently the market cannot possibly show what might be called a marked decline. The present weakening of the few is regarded with complaisance by the bull element, and is not believed to be of sufficient importance to give comfort to the interests which are seeking to depress prices. We quote, f.o.b. Cincinnati:

Southern Coke, No. 1.....	\$21.25 to \$21.75
Southern Coke, No. 2.....	20.25 to 20.75
Southern Coke, No. 3.....	19.25 to 19.75
Southern Coke, No. 4.....	18.50 to 19.25
Southern Coke, No. 1 Soft.....	21.25 to 21.75
Southern Coke, No. 2 Soft.....	20.25 to 20.75
Southern Coke, Gray Forge.....	18.50 to 19.25
Southern Coke, Mottled.....	18.50 to 19.25
Ohio Silvery, No. 1.....	to 30.00
Ohio Silvery, No. 2.....	to 29.00
Lake Superior Coke, No. 1.....	22.75 to 23.75
Lake Superior Coke, No. 2.....	21.75 to 22.75
Hanging Rock, No. 1 Foundry.....	to 23.00
Hanging Rock, No. 2 Foundry.....	to 22.00
Hanging Rock, No. 3 Foundry.....	to 21.00

Car Wheel and Malleable Irons.

Standard Southern Car Wheel, Chilling	
Grades.....	\$25.75 to \$26.25
Standard Southern Car Wheel, No. 2..	24.75 to 25.25
Lake Superior Car Wheel and Malleable.....	25.50 to 26.50

Plates and Bars.—There has been a quiet, steady market, with no change in prices. We quote, f.o.b. Cincinnati: Iron Bars, carload lots, 2.28c., with half extras; small lots, 2.60c., with full extras; Bar Steel, in car lots, 2.50c., with half extras; small lots, 2.95c., with full extras; Iron Bar Angles, 1½ x 3-16 inch and larger, in car lots, 2.55c.; small lots, 2.80c.; Sheets, No. 10, 2.80c.; No. 27, Stove Pipe, 3.25c.; No. 27, Steel, 3.35c.; Plates, 2.75c. to 3c.

Old Material.—The market has been rather dull, with a tendency to lower prices. We quote, f.o.b. Cincinnati: No. 1 Wrought Railroad Scrap, \$19 per net ton; Cast Scrap, \$12 per gross ton; Axles, \$24 per net ton; Iron Rails, \$21.50 to \$22 per gross ton; Car Wheels, \$22 per gross ton.

Structural Material.—Beams and Channels, 15-inch and under, 2.40c. to 2.45c.; over 15-inch, 2.50c. to 2.55c.; Flat Bars, 2.40c. to 2.45c.; Tees, 3-inch and larger, 2.45c. to 2.50c.; Stock Beams, 2.85c. to 3c., all f.o.b. Cincinnati.

Belgian Iron Market.

BRUSSELS, February 16, 1900.—I have somewhat delayed sending my correspondence because I have desired to place before the readers of *The Iron Age* the data relating to production and exports of Belgium during the year 1899. In order to give some conception of the development in Belgium the figures are presented for the production of Pig Iron for a series of years since 1890.

Production of Pig Iron.

	Tons.		Tons.
1890.....	787,836	1895.....	829,234
1891.....	684,126	1896.....	959,414
1892.....	753,268	1897.....	1,035,037
1893.....	745,264	1898.....	979,755
1894.....	818,597	1899.....	1,036,185

The production of 1899 was the greatest which Belgium has ever recorded. It seems almost certain, however, that the output of the current year will notably increase it. As a matter of fact, the first month of the year has recorded an output of 102,300 tons of Pig Iron as compared with 84,940 tons in January, 1899, thus showing an increase of 17,360 tons in one month. If, as seems likely, an increase is maintained during the 11 months of the current year, we would easily reach a total output for 1900 of 1,200,000 tons. Belgium, however, is far from making all the Iron which it needs for its own consumption. Thus in 1899 imports of foreign Iron were 359,710 tons, as compared with 317,828 tons in 1898, and 288,956 tons in 1897. Imports instead of falling off as might be inferred from the increase in production, have, on the contrary, gone on developing. As a matter of fact, imports have risen from 29,221 tons in December, 1899, to 38,265 tons in 1900. These notable records of increased production and in imports may convey some idea of the prosperity of the metallurgical industry in Belgium.

The United States supplies us with notable quantities of Pig Iron. In 1899 we received 11,552 tons of Pig Iron as compared with 7249 tons in 1898. In December,

1899, we received 754 tons and in January 608 tons. There has, therefore, been a slight decline. However, as will be seen further on from the table of prices, Pig Iron has actually in Belgium attained figures which are very high, and which undoubtedly must rise further, since there is a scarcity of Pig Iron. The grades which we are shortest of and which therefore the United States ought to find the greatest profits in supplying are Foundry Irons and Mill Irons. The scarcity in Pig Iron for Steel manufacture is less pronounced. The reason for the heavy advance in Pig Iron is the high price and the scarcity of Coke in Belgium and in neighboring countries. It has sold as high as 35 and 40 francs, and even 50 francs per metric ton has been paid. Besides this it is of very bad quality. As indicating the scarcity the Coke Syndicate has advised its customers that it would be necessary to cut down by 20 per cent. the quantities to be supplied. The result is that the blast furnaces have decided to create a stock company to put up coking ovens at Antwerp near the port where Coals imported from Great Britain and the United States are to be coked. I am convinced that American collieries can compete with English Coals at Antwerp. It must not be forgotten that slack Coal suitable for coking is actually selling in Belgium at 24 francs per ton, and is hard to get even at this high price. Besides the United States could easily furnish Coke. I believe, too, that your Coal mines ought to supply us with steam Coals and heating Coals. At the present time heating Coals cost 24 francs per ton, while corresponding quality is selling in Germany at 14.70 francs. In spite of high prices the Belgian Coals are poor in quality and full of slate. We therefore must rely upon foreign producers more and more. In the year 1899 we imported 2,839,428 tons of Coal, as compared with 2,202,517 tons in 1898, and this in spite of the fact that our production has increased and that our exports have fallen off. In December, 1899, we received from abroad 268,986 tons, and in January 284,488 tons. These imports come to us chiefly from Germany, England and France. The Coke imports show a similar movement. In 1898 they were 180,590 tons, but in 1899 they increased 296,668 tons. As for Coal the fact should be taken into consideration by American producers that the greater part of the current contracts expire toward the close of March, and that an increase in price of 5 to 10 francs is looked forward to.

The following table shows the production in Belgium of Finished Iron and Steel:

	Tons.		Tons.
1890.....	716,128	1895.....	818,846
1891.....	703,685	1896.....	1,013,343
1892.....	687,289	1897.....	1,002,436
1893.....	709,943	1898.....	1,052,768
1894.....	794,608	1899.....	1,111,500

The 1899 production is the greatest ever recorded in Belgium, and it would have been larger still but for the scarcity of raw materials, Pig Iron Scrap and Steel. The output of Steel has greatly increased from year to year, as shown by the following table:

	Tons.		Tons.
1890.....	242,566	1895.....	454,619
1891.....	243,913	1896.....	598,974
1892.....	260,037	1897.....	616,541
1893.....	273,113	1898.....	653,523
1894.....	405,661	1899.....	729,920

In spite of this very rapid increase during the past ten years there has been a scarcity of Steel. The iron rolling mills are using more and more Steel in the form of Billets, which they buy from Belgian works and import. So far as the latter movement is concerned, the imports of Blooms have fallen off, however, from 17,971 tons in 1898 to 6558 tons in 1899, and the imports of Billets from 3480 tons in 1898 to 1941 tons in 1899.

Blooms are now selling at 170 francs per ton, while Billets are quoted 180, the duty in Belgium being 4 francs per ton for the former and 6 francs per ton for the latter.

The greatest scarcity has developed in Muck Bars and in Old Iron Material. Muck Bar is very difficult to get at 160 francs, and Iron Skelp at 120 francs. The chief sources of our imports of Muck Bars are Germany, France and Sweden, while Old Material comes to us from Holland, Great Britain, France, Germany, Cape Colony, Brazil, Chili and the United States.

The duty on Muck Bar is 3 francs per ton, while Scrap is duty free.

The Belgian exports have increased in recent years, as is shown by the following table:

	Tons.		Tons.
1890.....	402,724	1895.....	556,855
1891.....	421,947	1896.....	668,182
1892.....	414,906	1897.....	685,628
1893.....	406,967	1898.....	718,527
1894.....	498,430	1899.....	698,736

The falling off observed in 1899 is due exclusively to the fact that the whole demand has grown largely owing to the extension of the mills which consume Iron and Steel. Prices are generally considerably higher for home

consumption than for export, without taking into account the fact that payments for our own markets are safer and quicker. There is little doubt, however, that exports will increase again, Australia particularly showing a heavy demand.

On the other hand it should be noted that a letting which took place last week for 2000 cars for the Belgian State roads brought out the fact that the Germans quoted prices 10 per cent. lower than the lowest Belgian figures. Therefore it looks as though the outlet for the home market will lessen, although until now the Belgian Structural mills, Bolt works, and other shops, are overloaded with orders for a number of months to come. In the following table is given a comparison of prices for February 16, 1900, compared with January 16, 1900 and February 16, 1899. It shows how heavy has been the advance:

	Febru- ary 16, 1900.	Janu- ary 16, 1900.	Febru- ary 16, 1899.
No. 3 Luxemburg Foundry Iron.....	110.00	110.00	66.00
Luxemburg Mill Iron.....	100.00	100.00	58.00
Charleroi Mill Iron.....	125.00	105.00	62.00
Thomas Pig.....	110.00	110.00	70.00
No. 2 Bars, f.o.b. Belgian stations....	230.00	230.00	145.00
No. 3 Bars, f.o.b. Belgian stations....	235.00	235.00	150.00
No. 2 Bars, f.o.b. Antwerp.....	225.00	225.00	135.00
No. 3 Bars, f.o.b. Antwerp.....	230.00	230.00	140.00
No. 2 Beams, Iron or Steel, at mill....	205.00	210.00	140.00
No. 2 Beams, Iron or Steel, f.o.b. Ant- werp.....	220.00	205.00	132.50
Angles, f.o.b. Belgian stations.....	235.00	235.00	150.00
No. 2 Iron Plates, f.o.b. Antwerp.....	225.00	225.00	155.00
No. 3 Iron Plates, f.o.b. Antwerp.....	240.00	240.00	165.00
Homogeneous Iron Plates, f.o.b. Antwerp	260.00	260.00	180.00
No. 2 Plates, f.o.b. Belgian stations....	225.00	225.00	165.00
No. 3 Plates, f.o.b. Belgian stations....	240.00	240.00	175.00
Homogeneous Iron Plates, f.o.b. Belgian stations.....	270.00	260.00	205.00
Steel Plates, f.o.b. Belgian stations....	240.00	240.00	175.00
Steel Plates, f.o.b. Antwerp.....	250.00	240.00	195.00
Sheets, f.o.b. Belgian stations.....	240.00	240.00	165.00
Steel Rails, f.o.b. Antwerp.....	190.00	160.00	120.00

Belgium has suffered lately a good deal from scarcity of cars. Some of the mills have been forced to close down, not being able to secure their supply. However, a new Minister of Railways has been appointed, and a rapid improvement is looked forward to as the result of his efforts.

German Iron Market.

ESSEN, February 14, 1900.—The weak point in the situation otherwise so extremely favorable is the scarcity of raw and intermediate materials of all kinds, which in some instances has developed into extraordinary dimensions and is most keenly felt. The troubles incident to this situation have led to a notable increase in the cost of production, and a corresponding lowering in profits. The outlook otherwise remains exceptionally good, owing to the extraordinary demand in all branches of the Iron industry, so that the general feeling is one of great confidence.

So far as Ores are concerned the fact should be noted that the Siegen Iron Ore Syndicate has fixed prices for the year 1901 on Spathic Ores at an advance of 3.50 marks per ton. This makes the prices per ton, f.o.b. mine, as follows: Raw Spathic Ore, 15.10 to 16.30 marks; Calcined Spathic Ore, 19.50 to 21.30 marks. Foreign Ores are still being held at high prices. So far as Minette is concerned business is quiet, the contracts for the current year having been closed long ago.

The scarcity in Pig Iron continues unabated, and large sales for 1901 delivery have been made at the following prices: Spiegeleisen, 100 to 102 marks; Ordinary Mill Iron, 84 to 85 marks; Bessemer Pig, 90 to 100 marks; Thomas Basic Pig, 90.20 marks; Luxemburg Mill Iron and Basic Iron, without Manganese, 78.40 to 79.20 marks; No. 1 Foundry Iron, 100 marks; No. 3 Foundry, 95 to 96 marks; Luxemburg Foundry Iron, 86 to 87 marks; English No. 3, f.o.b. Ruhrort, 91 marks; Hematite, 100 marks.

The Steel market has been very quiet, since the quantities available for the current year have been closed out. The scarcity of material continues unabated. We quote the following figures: Basic Ingots, 117 to 118 marks; Blooms of moderate dimensions, 122 to 123 marks; Billets, 127 to 128 marks; Slabs, 131 to 132 marks; High Carbon Bessemer Billets for tools, 150 to 160 marks, and upward.

It continues to be a difficult matter to meet the demand for Muck Bar. On very small lots, which are still available, 150 to 155 marks are quoted for good Westphalian brands, while Siegen Forged and Rolled brands bring 155 to 160 marks.

In the entire Finished Iron and Steel market business is quiet, so far as the dealers are concerned. The consumption has not let up in the slightest way, and as soon as the better season approaches the spring business is sure to develop. Most of the works are suffering from scarcity of specifications, and all of them are supplied with orders well into the next winter. The majority

have old contracts to take care of and are glad to catch up on deliveries. Iron Bars are selling at 210 to 220 marks, while Steel Bars are quoted 185 marks per ton. The market for Brands and Hoops is very favorable. Work is at hand for the greater part of the year, and the mills are fully engaged. Prices remain unchanged at 192.50 to 195 marks.

The Plate market is, generally speaking, quiet, the Plate mills being under heavy pressure; some of them have such large contracts on hand that they decline new orders. The Sheet market is quiet, all the dealers having old contracts are underselling the works. Prices for Sheets are 205 to 215 marks.

The Pipe works are well employed, but the scarcity in Gas Pipe Skelp has moderated, because the mills are able to deliver better during the winter. American Pipe is still being imported, but the quantities involved are not large.

The home requirements for Wire Rods have been covered for the whole year 1901; but on the other hand the contracts for Drawn Wire for the second half of 1900 are not entirely placed. In the world's market the prices on Wire Nails are growing firmer and firmer, and the competition on the part of Americans has slackened. Still sacrifice sales must occasionally be made, especially for the smaller sizes.

The State railways have ordered 9000 freight and passenger cars, so that the car shops are now busy up to fall of this year. The bridge and construction shops, locomotive and boiler works are enjoying general prosperity. The market for Cast Iron, Gas and Water Pipes remains very firm.

Metal Market.

Office of The Iron Age, 232-238 William street, }
New York, March 7, 1900. }

Pig Tin.—Business has been extremely quiet, but prices advanced daily under the influence of the London manipulation until they reached 35c. for spot. A reaction set in to-day, however, and with small transactions the market declined to 34¼c., at which price the market closed. March was freely offered to-day at 33¼c., and April is obtainable at 32½c. The London market reached its highest point yesterday morning with £152 for spot. A decline of £2½ on spot brought the cables to-day down to £149 10s. for spot and £142 for futures.

Copper.—The conditions of this market remain the same, and while there seems to be a tendency in certain quarters to advance prices, other parties hold quotations to be unchanged. This is as to Lake. Electrolytic Copper has advanced to the level of Lake prices. The figures quoted by the New York Metal Exchange are: Lake, 16¼c.; Electrolytic, 16¼c.; Casting, 16½c.

The London market is well controlled by the large interests, and a veritable squeeze in spot is now in progress. Spot prices have advanced considerably, going as high as £79 10s. yesterday. But to-day prices closed a half pound lower, with £79 flat. The future market is quoted as low as £75 5s. A wide difference from spot. The most astonishing feature, though, of this very peculiar London market is that Best Selected is quoted to-day £78 10s. It is not often that we see this highest grade at a lower figure than the 96 per cent. Regulars. That the speculative article is being manipulated is evident.

Pig Lead.—Is dull and without change as to price. The American Smelting & Refining Company still see fit to quote 4.70c. to 4.75c. for spot and futures. The London market closed to-day £16 13s. 9d. Arrivals at this port during the month of February amounted to 5950 tons. Exports in bond amounted to 4902 tons.

Spelter.—Is firmer, and while the demand is not active the tone of the market holds up remarkably well. As it is expected that the Sheet Iron mills will be taken over into the combination on April 1, this large class of consumers is buying only from hand to mouth. While this feature keeps down immediate consumption it does not affect the general situation adversely. Prices quoted to-day are 4.70c. to 4.75c., and it is reported that sales were made yesterday at 4.73¼c. March and April are quoted 4.65c. bid, 4.75c. asked. London advanced as high as £22 5s. during the week, but came back to £22 2s. 6d., at which price it closed to-day. A good export business is said to be under way. During the month of February 2025 tons of Spelter were shipped to Europe from this port.

Antimony.—There is no change. Hallett's is quoted 9¼c., and Cookson's prices are unchanged at 10¼c. to 11c.

Nickel.—Is without change. A good demand continues and prices for wholesale lots remain unchanged at 38c. Retail lots command as high as 45c.

Quicksilver.—Wholesale lots of 100 flasks and over

are quoted at \$51 per flask of 76½ lbs. The London market remains unchanged at £9 12s. 6d. for Rothschild's and £9 11s. 3d. for Second Hand.

Tin Plate.—The good demand continues and prices are unchanged. The American Tin Plate Company quote on a basis of \$4.84 per box of Standard 100-lb. Cokes, New York delivery, or \$4.65 f.o.b. mills.

Cleveland Machinery Market.

Office of *The Iron Age*, The Cuyahoga,
CLEVELAND, March 5, 1900.

It seems to be the general sentiment among the manufacturers of machine tools in this city that within the past ten days there has been an increase in the demand over any previous time. The month of February was hardly a record breaker, but the month of March promises to be from all accounts. The many improvements and extensions arranged for shortly after the first of the year brought forth a flood of inquiries during the early part of February, which are now materializing into substantial business.

The question of securing satisfactory labor is troubling manufacturers more than at any time in the past. Skilled machinists are exceedingly scarce, and to make matters worse there is a strong possibility of a strike among the machinists in this city. During the past two weeks nearly every concern in town employing machinists have been served with a notice signed by "The Employees," asking for a number of concessions. The notice is hand written and stereotype, and the grammar and construction would be a discredit to a 12 year old schoolboy. The substance of the demand is that 9 hours shall constitute a day and a night instead of 10 hours for day and 12½ hours for nights, as at present; that one and one-quarter time shall be paid for all night work, time and one-half for overtime, double time for Sundays and holidays, and that five nights shall constitute one week. A reply to the demands is requested by March 15. Almost without exception the manufacturers will pay no attention to the letter for the reason that it is practically anonymous. There is a feeling of independence among many of the men which broods no good for the future, and it is believed by some that there will be a showing of power by April 1. In one or two cases the talk of strike has proven a boomerang for the men. A prominent manufacturer stated that he had about decided to increase the wages of one class of mechanics employed in his shop, but that he had since changed his mind, feeling that even should this be done the same men would demand another increase if the strike went into effect. Although the majority of manufacturers claim that they are not worried at the outlook, there is plainly a tendency to push existing contracts to completion as rapidly as possible, and every available machine is being manned with extra help. It is the general sentiment that an increase in wages on the lines laid out is almost out of the question at the present time. Many projects are being held up because of the prevailing high prices caused by the scarcity of material, and a 10 or 12 per cent. increase in the cost of labor would simply throw prices up several more notches, which could not help being disastrous. As yet no move has been made to get the local manufacturers together to talk over the situation, but if the trouble continues to grow concerted action will be taken.

Material of all kinds seems to be coming better than has been the rule for several months, although one concern has been closed down several weeks through the inability to secure certain varieties of sheet steel. The foundries are crowded with work, but they are making better deliveries than formerly.

Considerable interest among Cleveland machinery manufacturers and agents is centered in the equipment of machinery for a large machine shop being erected by the Lorain Steel Works at Lorain. The building is 300 x 160 feet, and it is to be equipped largely with new machinery. Bids have been turned in by a number of local concerns, and John J. Frye, purchasing agent for the Lorain Company, informs us that the contracts have not yet been closed. Among other equipment there will be two large traveling cranes, one of 25 tons and the other of 10 tons capacity.

The Metal Goods Mfg. Company, incorporated in this city several months ago to manufacture sheet metal toys, have practically completed their factory, a two-story building 250 x 45 feet, and the machinery will be installed during the coming week. The equipment consists of punches and presses furnished by the E. W. Bliss Company of Brooklyn, N. Y., and the Waterbury-Farrel Foundry & Machine Company of Waterbury, Conn. The Medart Patent Pulley Company are furnishing the shafting. N. E. Parish of the Parish & Bingham Company of this city is at the head of the new company.

The local office of the Marshall & Huschart Machinery Company reports a greatly increased business during the past three weeks. Orders are for all kinds and varieties of machinery for additional equipments rather than for new plants. Their most noteworthy contract during the past month was one for the complete equipment of a new factory for the Acme Sucker Rod Company of Toledo. The contract calls for lathes, planers, radial drills, boring mill, &c.

The Cleveland Crane & Car Company state that the volume of orders for cranes has increased considerably since the first of the year and they now have business for several months ahead. The first shipment was made this week on an order for six three-motor jib cranes of large carrying capacity for the Dimmick Pipe Company of Birmingham, Ala. A 15-ton three-motor crane, with 65-foot span, was recently completed for Reeves Brothers of Alliance, Ohio; also a 10-ton one-motor crane for the Fulton Foundry Company and a 6-ton jib crane for the Lake Erie Iron Works of this city.

There is a possibility of a combination, or at least an agreement as to prices, among the manufacturers of steel balls, two prominent concerns, the Grant Ball Company and the Cleveland Ball & Screw Company, being located in this city. The ball manufacturers are greatly dissatisfied with the prevailing prices on the smaller sizes of balls, especially those used by bicycle manufacturers. They say that material and labor have increased greatly during the past six months, but they have been unable to secure a corresponding increase in their returns. It is a well-known fact that the Grant Company are willing to dispose of their ball interests in order to devote their attention to the extension of their machine tool business, and it is also true that in their present quarters the Cleveland Ball & Screw Company are cramped for space. It is understood that a proposition toward the consolidation of the two interests has been made, with a view to making the present Grant factory an exclusive ball plant.

The bids made on pumping engines for the new station of the Cleveland Water Works Department, mentioned in the last report of the Cleveland Machinery Market, were considered too high and were rejected by the city Board of Control. New bids are now being advertised for and will be closed March 17. It is believed that recent declines in the prices of steel will enable the manufacturers to quote somewhat lower prices. The specifications on the 20,000,000 gallon pumping engine have also been altered somewhat, so that a vertical triple expansion engine will be accepted instead of a vertical triple crank and fly wheel engine. Bids on boilers will be called for after the engine contracts have been closed.

The city of Alliance has voted to float bonds to the amount of \$35,000 for the purpose of building a municipal electric lighting plant.

Foot, Burt & Co., manufacturers of radial drills, say that the business of the past month has been better than that of any previous month in their history, with decided gains during the past two weeks. An important deal made by this concern last month was the sale of 50 sensitive drills, from two to six spindles each and of wholly new design, to the Hill-Clarke Company of Boston and Chicago. They are now at work on several drills of unusual size, one of them a four-spindle drill which goes to England. They report that their trade from abroad is increasing rapidly.

The Snyder-Hughes Company, manufacturers of steam pumps, report that the business has fallen off somewhat during the past two weeks, caused doubtless by prevailing high prices. They still have a large amount of business on hand and for the present at least the let up is acceptable.

Peter Gerlach, manufacturer of barrel making machinery, states there is no let up in the demand for his goods. He is considerably behind on orders and the demand is much better than ever before at this time of year. He has several new varieties of machines under way, among them a new nail keg stave machine.

The Danielson Machine & Tool Company, who are comparatively new in the field, report that their business is far beyond expectations and their factory force is constantly being increased. In the production of power presses they have been particularly successful. A noteworthy contract now being filled is a complete equipment of fork machinery for the Continental Tool Company of Frankfort, N. Y., manufacturers of garden tools.

The S. M. York Company, manufacturers of and dealers in machinery, are now carrying in stock a complete line of hangers, shafting and couplings. Shafting ranges from 1 to 4 inches in diameter and hangers from 8 to 26 inch drop. The stock is claimed to be the most complete in this State. The company are agents for the Dodge Mfg. Company of Mishawaka, Ind. Orders for machinery are steady, the volume having increased considerably during the past two weeks.

The McMyler Machinery Company, hoisting and conveying machinery, say that they are extremely busy on small work, no large contracts having been taken up lately.

The Garry Iron & Steel Roofing Company state that there is no let up in the demand for structural iron work for factory buildings and that a number of prominent concerns are figuring on additions. A shipment of structural iron work to the Klondike was made recently. They are at work on a large floating crane to be used by the Government in the Ohio River at Cincinnati. The machine shop of their new plant is now being installed, and a large equipment of lathes, boring mills, planers, &c., is being received.

Reade & Bowler, dealers in second-hand machinery, report that the demand for their line has increased considerably during the past two or three weeks, with no decline in the number of inquiries. The call for heavy machine tools is larger than ever before. They have recently completed the sale of the wood working plant of the Tiedman Furniture Company of Defiance, Ohio, and have a large stock of the variety of machinery on hand from other plants. The demand for engines of all sizes is particularly strong and they have quite a number of engines on hand, especially in larger sizes. George H. Bowler of this firm has been under the weather for some time, and leaves this week for a hunting trip through Texas.

The Cleveland Elevator Bucket Company, manufacturers of pressed steel buckets, have been practically closed down several weeks through the inability to secure the variety of sheet steel required for their work. Small lots have been delivered at various times, but not enough to take care of several large contracts that they have on hand.

The car barns and the machine shop of the Cleveland, Elyria, Berea & Oberlin Electric Railway were destroyed by fire last Friday. The loss was about \$75,000. New machine shop equipment will be required.

Edward K. Gillette, manager of the Cleveland office of the General Electric Company, has been succeeded by A. B. Shepard. Mr. Gillette goes to Pittsburgh to become office manager for the Sterling Company.

Oliver P. Clay, president and general manager of the Clay Stamping Company, has been succeeded by S. S. Kurtz, a stockholder of the company and formerly with the Gilliam Mfg. Company of Canton, Ohio.

W. E. Reed, secretary of the Warner & Swasey Company, sailed for Europe last week with the complete line of the company's screw machines which are to be exhibited at the Paris Exposition.

The Chicago Machinists' Strike

The proprietors of machine shops in Chicago have unanimously voted, through their organization, the Chicago Association of Machinery Manufacturers, not to grant the demands of the International Association of Machinists, and the machinists in practically every shop in that city have struck. The association have employed counsel and made all arrangements to resist the demands of the union to the bitter end. They are in consultation with the National Metal Trades' Association of New York, the Columbus Metal Manufacturers' Association and with prominent manufacturers in Milwaukee and other cities for the purpose of operating in harmony with them. They invite correspondence with associations of manufacturers throughout the country. Their headquarters are in room 1007, Fisher Building, Chicago. Following is a copy of the agreement which the International Association of Machinists have demanded that the Chicago manufacturers shall sign:

AGREEMENT BETWEEN.....
and..... of the International Association of Machinists.

Date.....

1. That on and after..... the..... agree to employ only members of the International Association of Machinists in good standing on machinists' work and die tool work.

2. Machinists shall be recognized as per constitution of subordinate lodges of the International Association of Machinists, and shall be either a general workman, a competent floor hand, lathe hand, vise hand, planer hand, shaper hand, milling machine hand, slotting machine hand, die sinker and tool maker or boring mill hand.

3. The minimum rate of wages for machinists shall be 28 cents per hour, and for die and tool work 32½ cents per hour.

4. All overtime up to 12 o'clock midnight shall be paid for at the rate of one and a half time.

5. After 12 o'clock and all legal holidays and Sundays shall be paid for at the rate of double time.

6. The employment of apprentices shall be in accord-

ance with constitution of the International Association of Machinists.

7. Nine hours shall constitute a day's work. All time worked over nine hours shall be governed in accordance with sections 4 and 5.

8. When necessary to reduce the force of employees on account of slackness of work, the..... Company hereby agree that employees who have been laid off will be given first opportunity for re-employment, seniority and proficiency to govern.

9. In case of a grievance arising, the..... Company agree to receive a committee of their employees to investigate and, if possible, adjust the same. If no adjustment is reached, the case shall be referred to the..... Company and the Executive Board, District No. 8, International Association of Machinists. If no satisfactory settlement is agreed on, the whole subject matter shall be submitted to a board of arbitration of five persons, two to be selected by..... Company, two by District No. 8, International Association of Machinists, and the four to choose a fifth arbitrator. The decision reached by this board to be binding on both parties to this agreement.

10. This agreement shall be in force until March 1, 1901.

11. Thirty days' notice shall be given prior to March 1, 1901, by one party of this agreement to the other for a renewal of the agreement, or any desired change in the same.

Signed.....
.....

CONTENTS.

	PAGE.
Special Appliances at the Works of the Lodge & Shipley Machine Tool Company. Illustrated.....	1
Germany's Large Contract for Swedish Iron.....	1
Industrial Consolidations and the Export Trade.....	3
The Louisville Bolt & Iron Company.....	3
Canadian News.....	4
The Duty on Charcoal Bar Crop Ends.....	5
The Auto-Sparker for Gas Engines. Illustrated.....	5
The Manufacture of Wire Fencing. Illustrated.....	6
The Washburn Wire Company.....	8
The Steel Sheet Combination.....	8
Large Steel Cars.....	8
The National Metal Trades Association.....	9
National Tin Plate Company.....	10
Special Coin Machinery. Illustrated.....	11
The Seaboard Steel Casting Company.....	11
The Federal Industrial Commission.....	12
Information Wanted.....	15
Lake Iron Ore Matters.....	15
Editorials:	
Refunding and the Banks.....	17
The Machinists' Strike.....	17
Correspondence.....	18
The Hammond Steel & Iron Company.....	18
The Duff Gas Producer.....	18
Obituary.....	19
Personal.....	19
Annealing Malleable Cast Iron.....	20
A New Tax on Ontario Nickel.....	20
The Champion Iron & Steel Works.....	21
A Decline in Pig Iron Production.....	22
Manufacturing:	
Iron and Steel.....	23
Machinery.....	23
Hardware.....	24
Miscellaneous.....	24
The Iron and Metal Trades:	
A Comparison of Prices.....	25
Chicago.....	25
Pittsburgh.....	27
Philadelphia.....	27
St. Louis.....	28
Cleveland.....	29
Cincinnati.....	29
Belgian Iron Market.....	30
German Iron Market.....	31
Metal Market.....	31
Cleveland Machinery Market.....	32
The Chicago Machinists' Strike.....	33
The New York Machinery Market.....	34
The American Radiator Company.....	34
Iron and Industrial Stocks.....	34a
Advance to Tube Workers.....	34a
The Sharon Tin Plate Company.....	34a
Trade Publications.....	34b
Hardware:	
Condition of Trade.....	34c
Notes on Prices.....	34c
Hardware Organizations.....	35
Sixth Annual Sportsmen's Exposition.....	35
National Retail Hardware Association.....	36
Among the Hardware Trade.....	36
The American Eagle. Illustrated.....	37
Trade Items.....	37
The Ohio Hardware Association. Illustrated.....	38
Price-Lists, Circulars, &c.....	34
Illinois Retail Hardware Association. Portraits.....	55
Hay-Budden Mfg. Company's Fire.....	62
Requests for Catalogues, &c.....	62
Wyoma Coaster and Brake.....	62
The Eagle Lawn Mower. Illustrated.....	63
The 1900 Solar Acetylene Gas Bicycle Lamp. Illustrated.....	63
The New Aspinwall Double Action Churn. Illustrated.....	63
The New Century Sprayer. Illustrated.....	64
The Aspinwall Post Hole Digger. Illustrated.....	64
The Gem Oiler. Illustrated.....	64
Current Hardware Prices.....	65
Current Metal Prices.....	72

The New York Machinery Market.

Office of *The Iron Age*, 232-238 William street, {
New York, March 7, 1900. }

In the condition of the market there is no change. While that life and vim which constitutes an active market seems to be wanting, merchants claim that the aggregate of the little things that are closed foot up very well. We hear of no important changes in prices. The Crescent Steel Company have issued to the trade a revised list of prices for forged cutter blanks, carried in stock at their New York warerooms, 480 Pearl street.

Among the best customers of the week in the machine tool market were the Rand Drill Company. It is said that a fair sized lot of medium sized tools were purchased. It is thought in the trade that these tools are to be added to the equipment of the old Weston Engine Company's plant at Painted Post, N. Y. This plant was recently acquired by the Rand Drill Company.

The General Electric Company concluded the purchase of a good batch of tools, amounting to something like \$25,000. It is said that these tools will be erected at Schenectady, but it is also said that this company will soon require a larger assortment of tools for their new Canadian shops.

A project, which has assumed definite shape, contemplates the building of a large dry dock and new shipyard at South Brooklyn, N. Y. The new plant will be built on the site of the old Atlantic Yacht Club property, foot of Fifty-fifth to Fifty-seventh streets, Brooklyn. The property is to project 2000 feet into the New York Bay, touching the channel. A 600-foot dry dock will be built immediately, but it is intended to soon add 200 feet, making it of sufficient capacity to take in any ship afloat. It will be of the floating sectional type, operated throughout by electric motors. The main machine shop will be 600 feet long, 80 feet wide and a two-story brick construction. An independent electric power plant will be installed, as well as an air compressing plant. Much of the work will be performed with pneumatic tools. Electric traveling cranes will be placed in the machine shop, and a railway system will be arranged and locomotive cranes employed on yard work. Plans are almost perfected for the entire plant, and specifications are now being sent out for the equipment. The plant will necessitate the installation of a great amount of machine tools. The work is being carried through by the Morse Iron Works & Dry Dock Company, who were recently incorporated; and the directors of the new company are E. B. Morse, C. G. Street, W. A. Turner, W. L. Chapman and Lemuel Hooper. This company will eventually absorb the Morse Iron Works, whose plant is located at the foot of Twenty-sixth street, Brooklyn. E. B. Morse, who is the president of both concerns, is deciding all matters relative to the new plant. He is located at the office of the Twenty-sixth street company.

The Manhattan Railway Company are now in the market for 4 exciter engines each to drive a 250kw. electric exciter. The engines will, of course, be of a high speed type and will make 220 revolutions per minute. Specifications have been issued.

The large addition which is being built to the plant of the Singer Mfg. Company, at Elizabethport, N. J., is nearing completion. This portion of the plant will be devoted to milling small parts, and the company will soon be in the market for a large number of milling machines. It is probable that machines of the "Lincoln" type will be installed.

Orders are being placed by the Weston Electrical Instrument Company of Newark, N. J., for universal milling machines, and other machine tools. It is not expected that the company will be ready to occupy their new Waverly, N. J., works until July 1.

On March 13 bids will be received at the Brooklyn Navy Yard for two air compressors of 1000 cubic feet per minute each. It is expected that the purchase of the compressors will be followed by a good sized order for pneumatic tools.

The Standard Oil Company have purchased a new boiler plant for their Eagle Works, which are located at Claremont, N. J. The order for the boilers was given to the Oil City Boiler Works and the Buffalo Forge Company of 39-41 Cortlandt street were awarded the contract for the forced draft apparatus. This apparatus includes two 90-inch fans, direct connected to special high-speed engines.

The Buffalo Forge Company have received an order for a forced draft plant from Hugh Kelley of the United Fruit Company. The plant is to be operated in connection with special bagasse furnaces.

It is stated in the street that the New York Air Brake Company intend to build factories in France, Germany and Russia. It will be recalled that this company were good customers in the machinery section a short time ago, when they purchased freely of the best tools built, for installation in their shops at Watertown, N. Y.

Ever since the Spanish-American war the authorities of the Royal Spanish Arsenal at Trubia have been inquiring in this market for machinery for the hydraulic manufacture of cartridge cases for quick-firing guns and large cartridge shells. We are informed that they have now placed their order, through Jeremiah Head & Son of London. The machinery will be built by the Farrell Foundry & Machine Company of Waterbury, Conn.

The Cleveland City Forge & Iron Company of 11 Broadway, N. Y., and Cleveland, Ohio, have been awarded an order for a 35-ton engine shaft from the Glasgow Street Railway Company of Glasgow, Scotland. The shaft is to be 25 feet long and from 26 to 27 inches in diameter at various places.

It is reported that the Hawaiian Electric Company, Limited, of Honolulu, will shortly be in the market for an ice making and refrigerating plant.

The Frick Company of 39 Cortlandt street, New York, have received an order for a complete ice making plant for Kobe, Japan. The Kobe Electric Light & Power Company were the purchasers. This company also purchased five 100 horse-power boilers from the Frick Company. Mr. Enya, the chief engineer of the Japanese company, who was in this country for some time, placed the orders just before he returned to Japan.

The Clayton Air Compressor Company have received an order from the Russian Government for four air compressors. They are to be installed in the Cronstadt Navy Yard. The company have also just shipped three compressors to the Stettin Navy Yard, Germany.

We are informed that the chief engineer of the American Writing Paper Company of Holyoke, Mass., is asking for catalogues and circulars relating to the construction and equipment of paper mills.

There are reports in the street to the effect that N. D. Grey of Milwaukee, Wis., is entertaining a proposition to build a flour mill in the vicinity of New York for the Standard Flour Milling Company.

The American Radiator Company.

The following is the balance sheet at the close of business January 31, 1900, of the American Radiator Company:

ASSETS.	
Plants, real estate, machinery, patents, &c.....	\$6,692,395.06
Depreciation for past year.....	100,000.00
	\$6,592,395.06
Cash	\$209,373.90
Notes receivable.....	53,671.90
Stocks and securities.....	7,550.00
Accounts receivable.....	878,652.82
Raw material, supplies and finished product, inventoried at cost.....	842,502.39
	1,991,751.01
Total.....	\$8,584,146.07
LIABILITIES.	
Capital stock, preferred.....	\$3,000,000.00
Capital stock, common.....	4,893,000.00
Total.....	\$7,893,000.00
Accounts payable.....	191,484.25
	\$8,084,484.25
Balance.....	\$499,661.82
Total net profits for 12 months ending January 31, 1900.....	\$657,161.82
Less three quarterly dividends paid during year on preferred stock....	157,500.00
Balance.....	\$499,661.82

Joseph Bond, the president, states the following in his report: "The basis upon which our company was organized one year ago has enabled us to make excellent progress in manufacturing; to materially reduce the expenses of selling and of distribution; to reflect the benefits and savings from the larger method of operation in the maintenance of conservative prices, embodying far less of advances than have taken place in raw materials or kindred lines. The physical condition of our plants has been improved during the year, and the operation of the several plants of our company in friendly rivalry with each other has stimulated every department, hastened the introduction of the latest improved methods, eliminated inferior equipment and resulted in progress and economy otherwise impossible."

George A. Evans, for many years sales agent of the Bethlehem Iron Company, died on the 6th inst., aged 67 years.

Dr. David T. Day of the United States Geological Survey, Washington, D. C., has started for Europe. He will install the petroleum exhibit.

The Illinois Steel Company state that the reports are erroneous that the machinists in their South Chicago shop have struck. The machinists in the shops of the Chicago, Lake Shore & Eastern Railroad Company, an affiliated interest, are also still at work.

QUOTATIONS OF IRON STOCKS DURING THE WEEK ENDING MARCH 7, 1900.

Cap'l Issued.		Sales.	Thursday.	Friday.	Saturday.	Monday.	Tuesday.	Wednesday
\$29,000,000	Am. Car & Foundry, Common..	2,435	15 -15%	14% -15	-14%	-15%	14% -15	-15%
29,000,000	Am. Car & Fy, Pref. (7% Non-Cu.)	4,590	-62	61 -61%	-60	-60%	61% -62%	62% -62%
19,000,000	Am. Steel Hoop, Common.....	53,960	36% -41%	35% -37%	36% -37%	34% -37%	32 -35%	33% -35
14,000,000	Am. Steel Hoop, Pref. (7% Cu.)	1,850	-79	80 -81	-80	-80	-80	-80
50,000,000	Am. S. & W., Common.....	81,668	56 -58%	53% -56%	54 -56%	55 -56%	53% -55	53% -54%
40,000,000	Am. S. & W., Pref. (7% Cu.)....	5,020	91% -92%	90 -90%	-90%	.....	90% -90%	-90
28,000,000	Am. Tin Plate, Common, N. Y..	8,975	31% -33%	32 -32%	32 -32%	32 -33	30% -31%	30 -31%
18,000,000	Am. Tin Plate, Pref., N. Y. (7% Cu.)	250	.....	.....	.....	.....	.....	-80%
7,500,000	Bethlehem Iron.....	31	-58	-58	.....	.....	.....	.....
15,000,000	Beth. Steel, Par \$50, \$1 paid in.	362	.....	17 -17%	.....	.....	-17%	.....
7,974,550	Cambria Iron, Phila.....	194	.....	-44	-44	.....	-44%	.....
16,000,000	Cambria Steel**.....	7,783	20% -21%	20% -20%	20% -20%	20% -20%	20% -20%	19% -20%
11,000,000	Col. Fuel and Iron.....	4,640	44 -45%	43 -43%	42% -43%	44% -44%	43 -43%	.....
46,454,300	Federal Steel, Common.....	51,460	52% -54%	50% -52%	50% -51%	51 -52%	50 -51%	50% -51%
53,253,500	Federal Steel, Pref. (6% Non-Cu.)	6,643	72% -74	72 -72%	72 -73	72% -73	72 -73%	72 -73%
82,000,000	National Steel, Common, N. Y..	48,681	44 -47	42 -45	43 -43%	42% -43%	41 -42%	41% -43
27,000,000	Nat'l Steel, Pref., N. Y. (7% Cu.)	1,252	-96	94% -95	.....	.....	95 -95%	-94%
5,000,000	Penna., Common, Phila.....	10	.....	.....	.....	-81	.....	.....
1,500,000	Penna., Pref., Phila.....	.....	.....	.....	.....	.....	.....	.....
12,500,000	Pressed Steel, Common.....	2,207	.....	54% 54%	.....	.....	48 -53%	-53
12,500,000	Pressed Steel, Pref. (7% Non-Cu.)	160	.....	-85	.....	.....	.....	.....
27,352,000	Republic Iron & Steel, Common.	11,210	22% -23%	21% -22%	21% -22%	21% -22%	19% -21%	20 -21%
20,852,000	Repub. Iron & Steel, Pref. (7% Cu.)	3,600	67% -68%	67 -67%	-66%	66% -67	65% -66	66 -67%
2,000,000	Tennessee Coal and Iron.....	26,873	93% -96%	90% -93	91 -95%	92 -95%	91% -93	92% -93%
1,500,000	Warwick Iron & Steel (par \$10)	385	-10%	-10%	10 -10%	.....	-10%	-10

* Par \$50. ** \$4.50 per share paid in. † 6% guaranteed by Beth. Steel Co. Late Philadelphia sales by telegraph. ‡ Ex-dividend.

Bonded indebtedness: Am. S. & W., \$130,656; Am. Tin. Plate, none; Am. Steel Hoop, none; Cambria Iron Co., \$2,000,000 6% debenture 20-year bonds, 1917, payable option 5 years, assumed by Cambria Steel Co.; Federal Steel Co., \$13,200,000 Illinois 5%, \$7,417,000 E. J. E. R. R. 5%, \$1,600,000 Johnson 6%, \$6,732,000 D. & I. R. R. 5%, \$1,000,000 2d D. & I. R. R. 6%, \$10,000 land grant D. & I. R. R. 5%; National Steel, \$2,561,000 6%; Tennessee C. I. & R. R. Co., \$8,367,000 6%, \$1,114,000 7%, \$1,000,000 7% cu. pref.; Pennsylvania Steel, \$1,000,000 5%, Steelton, 1st, 1917, \$2,000,000 5%; Sparrow's Point, 1st, 1922, \$4,000,000, consolidated, both plants; Bethlehem Iron, \$1,351,000 5% maturing 1907. Interest and principal guaranteed by Bethlehem Steel Co. Republic Iron & Steel, none; Warwick Iron & Steel, none; Colorado Fuel & Iron Co.; Col. Fuel Co. Gen. Mort. 6% \$880,000, Col. Coal & Iron Co. Mort. 6% \$2,810,000, Col. Fuel & Iron Gen. Mort. 5% \$2,303,000. Also outstanding \$2,000,000 preferred stock with accumulated dividends of \$640,000 to June 30, 1899.

Iron and Industrial Stocks.

The week has been characterized by some heavy liquidation, notably in the National Steel and American Hoop stocks, both of which declined quite heavily. It is reported that the sales emanate from the Moore interest.

Generally speaking the majority of the Steel stocks suffered in sympathy with the general market, disturbed as it was by developments in Third Avenue and in Sugar stocks.

	Bid.	Asked.
American Bicycle Company, Common.....	15	15½
American Bicycle Company, Preferred.....	44	46
American Bicycle Company, Bonds.....	.....	90½
E. W. Bliss, Common.....	.....	137
E. W. Bliss, Preferred.....	125	.....
Diamond State Steel.....	4½	4%
International Silver, Common.....	7½	8%
International Pump, Common.....	18	19
International Pump, Preferred.....	65	66
National Tube, Common.....	52%	53
National Tube, Preferred.....	93	93½
Otis Elevator, Common.....	22	25
Otis Elevator, Preferred.....	86	88
U. S. Projectile.....	95	105
Sloss & Sheffield Steel & Iron, Common.....	27	29
Sloss & Sheffield Steel & Iron, Preferred.....	67½	69
Tidewater Steel.....	13½	14
U. S. Cast Iron Pipe Company, Common.....	7¼	8¼
U. S. Cast Iron Pipe Company, Preferred.....	45	48
H. R. Worthington, Preferred.....	101	.....
Empire Steel, Common.....	20	23
Empire Steel, Preferred.....	60	63

A circular, signed by Walter S. Gurnee, James T. Woodward and James H. Smith, has been sent to the stockholders of the Tennessee Coal & Iron Company stating that, two-thirds of the preferred stockholders having voted to accept the exchange on the common stock on a basis for 100 shares for 180, the Executive Committee has declared the plan effective, and has increased the capital stock to \$23,000,000, all common stock. It is proposed to sell \$1,200,000 of the new stock for cash, which has been underwritten at par, less a small commission, and to reimburse the company's treasury for advances made, as follows: "1. In the acquisition of the three Sheffield furnaces, 370 coke ovens and 72,000 acres of coal lands; 2. in the construction and equipment of the steel plant of the Alabama Steel & Shipbuilding Company, together with the foundry and machine shops, the proceeds of the securities of that company having proved insufficient to fully construct and equip such plant, and no provision having been made in the original estimates for foundry and machine shops; 3. in the acquisition of ore lands needed to supply ores to the Sheffield furnaces; 4. in the acquisition of the Bessemer rolling mill plant and equipment." Of the \$3,000,000 new common stock which it is proposed to issue \$1,800,000 would, under the plan, be required for exchange for the present \$1,000,000 of preferred stock and cancellation of back dividends. The remaining \$1,200,000 is to be sold for cash, and it is understood that this portion has been underwritten at par, less a small commission. The purchases of the company of furnaces, ovens and lands above noted are understood to have amounted to over

\$800,000, while about \$350,000 is needed to complete the construction of the shipbuilding plant.

The plan further states that "it is confidently expected that if the plan above outlined is carried out and the company in this way are saved from the necessity of paying the back dividends on the preferred stock in cash, the common stock of the company can on or about April 1, 1900, be placed and maintained on an 8 per cent. per annum dividend paying basis, 2 per cent. to be paid quarterly."

The Pittsburgh Stove & Range Company of Pittsburgh have declared the second quarterly dividend of 1½ per cent. on the preferred stock, payable March 20. The disbursement amounts to \$17,500.

The directors of the Colorado Fuel & Iron Company have declared a dividend of 8 per cent. on the preferred stock for the year ending June 30, 1897, payable April 2, 1900.

The National Steel Company have declared a dividend of 1½ per cent. on the preferred stock.

Advance to Tube Workers.—(By Telegraph.)—PITTSBURGH, March 7.—For some time past the officials of the National Tube Company of Pittsburgh have had under consideration the matter of advancing wages of the tube workers employed in their various plants. At a recent meeting of the board it was decided to give the tube workers in all their plants an advance in wages, which will average about 10 per cent., to take effect May 1. The statement that it would go into effect March 12 is incorrect. It is probable that an advance of 25 cents a ton will be given the puddlers employed by the National Tube Company, taking effect April 1. The scale paid for this class of labor is governed by the Amalgamated Association.

The Sharon Tin Plate Company.—The Sharon Tin Plate Company of Sharon, Pa., will make application for a charter with a capital stock of \$1,000,000. This concern proposes to erect a 10-mill tin plate plant in connection with the new blast furnace and open hearth plant now being built by the Sharon Steel Company at Sharon. The company will apply for a charter on March 12, the incorporators being Frank H. Buhl, John Stevenson, David Adams, H. P. Forbes and James P. Whitla.

Lukens Iron & Steel Company. Coatesville, Pa., makers of steel plates, have established a branch office at 8 Oliver street, Boston, in charge of H. G. Porch, formerly of their New York office.

It is reported that within 60 days the Illinois Steel Company will be receiving their entire supply of coke from their own ovens. These are located partly in the Connellsville and partly in the Pocahontas region. They are adding a large number of new cars to their rolling stock now engaged in hauling coke.

Trade Publications.

Forges, Blowers, Screw Plates, Blacksmith Tools, &c.

—We have received from the Champion Blower & Forge Company of Lancaster, Pa., a very complete illustrated catalogue of their steel forges, lever and crank blowers, portable forges, blacksmith drills, tire benders, screw plates, taps and dies, tire and axle shrinkers and welders, fan blowers, exhaust fans, steel pressure blowers, disk wheels, &c. Their steel forges and blowers mark a new era in this line. Their construction is principally of structural steel, making them strong, stiff and light. The mechanical construction for producing the blast is entirely new. The machinery necessary to produce the regular and continuous positive drive to the blower has but three pieces connected directly to the fan shaft, which is constructed with ball bearings precisely like a hub on the wheel of a bicycle. Its parts are all made from hammered tool steel and phosphor bronze, and cut from the solid metal. The fan and machinery for operating it are all closely connected and covered with an oil tight casing, doing away entirely with belts and friction. The Champion steel forge is made in all sizes and styles to meet all kinds of work, and the smallest size has blast enough, when desired, to produce a welding heat on 4-inch iron in 10 minutes. In their ball bearing, self feed blacksmith post drill the cup and cone are both made of tempered die steel. This ball bearing results in a saving of from 20 to 50 per cent. in the power required to drive the drill. The drill is back geared, and has the company's third gear principle, which gives the second speed the same crank motion as on the first speed. This third gear, being part of the handle hub, is disengaged when using the first speed, thereby saving the continuous labor of pulling along an intermediate gear while using the first speed.

Gas and Gasoline Engines.—A catalogue of the Lennox Machine Company of Marshalltown, Iowa, describes their stationary gas and gasoline engines, portable engines, and engines and pumps combined. This engine is designed to withstand the most severe service. It is very massive in design, the material being of the best quality. All the engines above two horse-power are provided with two heavy fly wheels, perfectly counter-balanced, thereby producing an even, steady motion, also relieving all working parts of undue strain. All working parts are made adjustable, thus providing means for taking up any lost motion due to long service. The cylinder, cylinder head and valves are liberally water-jacketed to prevent overheating. The bed and main boxes are cast in solid pieces, which insures solidity and perfect alignment of the crank shaft and its parts. The cylinder valves are made separately and are strongly attached by studs and dowel pins. The object of this is to permit of repairs being made at any machine shop without special tools, and the furnishing of those parts subject to wear without having to pay for almost an entire engine. The governor is attached to the hub of the fly wheel, and so acts upon the valve as to produce a steady motion. It controls the quantity of gas or gasoline entering the cylinder and allows only the proper amount to enter necessary to do the work. When the engine is working it uses fuel in proportion to the work being done. A distinctive feature of this governor is that, while the engine is running light the exhaust valve is held open and no compression takes place in the cylinder. This is a very important and desirable feature, as the working parts are thus relieved of all heavy strain.

Air Compressors.—The New York Air Compressor Company, 120 Liberty street, New York, have prepared a catalogue descriptive of their air and gas compressors, air receivers, vacuum pumps, &c. These compressors have been designed with special reference to the requirements of those whose needs demand an air compressor which shall be simple in form, economical in service, durable to the utmost in its working parts, and absolutely self controlling. Combining these elements with the best materials in workmanship, and the result is the ideal air compressor. Their duplex air compressor is designed especially for the operation of pneumatic tools and other service requiring air under pressures up to 100 pounds per square inch. This arrangement combines simplicity of design with great strength of construction and highest economy in operation. Their single air compressor is intended for all around pneumatic service. Descriptions are presented, together with excellent half tone engravings of the different types of machines built by the company.

Smooth-On.—We have received from the Smooth-On Manufacturing Company of Jersey City, N. J., a pamphlet descriptive of their compound for shipbuilders and

founders, engineers, &c. Smooth-on compounds are carefully prepared by an analytical chemist in such a way that the uniformity and high standard of the product are assured. It is an iron compound prepared in powdered form, and when mixed with water to the consistency of a stiff putty, possesses the quality of solidifying. During the hardening it expands about 10 per cent., and this action makes it valuable for many mechanical uses. It will resist the action of steam, heat, water or oil. It will not produce corrosive action, whether applied to cast iron, wrought iron, or steel. It is particularly applicable for the filling of defects in iron or steel castings, filling cracks, and the like.

Gear Cutting Machines.—We have received from the D. E. Whiton Machine Company of New London, Conn., a circular descriptive of their gear cutting machines and the several attachments provided for use with them. The general design of the gear cutter affords the greatest possible convenience of adjustment and operation upon all varieties of work. It is much more satisfactory in use than machines in which the cutter travels under the blank, because the cutter and the work performed are always in full view. The work holding spindle is adjustable toward or from the cutter for variations in diameter and for depth of cut, and may be clamped at any desired point. It is hollow and of such shape that chucks or special fixtures for holding the work may be readily fitted. The machine will cut spur, bevel and worm gears up to 30 inches in diameter by 6½ inches face, six pitch and finer, and is especially effective on sizes under 15 inches. With the machine are provided a center attachment, by means of which taps, reamers, &c., may be fluted and pinions which are solid on their shafts may be cut. A vise attachment fastens on the bed of the machine near the cutter head and has a graduated base, so that cuts may be taken at any angle. An arbor support is provided when a number of duplicate gears are to be cut in a string on a long arbor. When it is desired to cut both racks and gears upon the same machine the cutter driving mechanism is modified in order to permit the unobstructed passage of the cut portion of the rack.

Cold Saw Cutting Off Machinery.—Lucas & Gilem have just issued Catalogue No. 4, 1900 issue, illustrating the various patterns of their cold saw cutting off machines. Its 32 pages are filled with descriptions of the machines and their capacities, and together with the numerous illustrations, serves to make an attractive book for those interested in the subjects treated off.

The Weiss Molding Machine.—The Maywood Foundry & Machine Company, Maywood, Ill., have issued a most attractive catalogue, giving the special features of the Weiss molding machine which they manufacture. This machine is of the stripping plate type, rammed by hand, and portable. Two machines make a set, one of them being used for the cope and the other for the drag, the two machines matching the mold. They are portable, the usual practice being to start them at one end of the sand pile; and as sand and flasks are used up the machines are moved along with the work. Thus much time is saved. The catalogue gives illustrations of the machine and its parts, and comprehensively explains its merits and advantages. The practical foundryman will find a great deal to interest him on the pages of this catalogue.

Speed Lathes.—R. E. Kidder, 33 Hermon street, Worcester, Mass., issued a circular showing a new 11-inch speed lathe with combination wheel and lever tail stock. The head and tail spindles are made of crucible steel; size of hole in spindle, 9-16 inches; front bearing, 1½ x 2¼ inches; composition boxes. Size of cone, small section, 2½ inches; large, 6½ inches; 1 9-16 inch face. The tail spindle is easily changed from a wheel to a lever feed and *vice versa*. There is a shelf on the back of bed for tools. The binders for rest and tail stock are convenient and efficient. Regular length of beds, 4 and 5 feet. Shipping weight of 4-foot bed, with countershaft, 312 pounds. These lathes, it is stated, are made of the best material and finish, and are said to be first-class in every respect.

The President of Mexico has issued a decree for the establishment of bonded warehouses at Mexican ports of entry. Managers of such warehouses may loan money on the goods deposited as well as enjoy the usual privileges pertaining to this business in foreign countries, collecting storage charges, &c. Exemption from custom duties on the materials for the construction of the warehouses is granted for five years.

HARDWARE.

Condition of Trade.

THE severe storms which prevailed during the past week had the effect of curtailing trade somewhat. The general situation remains without important modification. Both manufacturers and jobbers are getting desirous of seeing a freer movement of goods than has characterized business for the past month or two, but it is anticipated that with the opening of spring there will be an increased demand. The tone of the market in regard to prices remains unchanged. Manufacturers' quotations are steadily maintained and there is little indication of any yielding. Some lines are slightly higher. The tendency among the retail trade to organize continues, and there is no doubt that the result of the meetings of the past month, when so many States had their conventions, is to indicate the strength of this movement. The associations which have been active in protecting retailers' interests have doubtless succeeded in accomplishing something, especially in the direction of preventing interference by manufacturers and jobbers with the sale of goods to contractors or consumers. Foreign business continues large, notwithstanding the high prices prevailing in certain lines.

Chicago.

(By Telegraph.)

Shelf Hardware jobbers are pleased at the manner in which the volume of business keeps up in spite of a number of adverse influences. They have had to contend the past week with severe storms covering the entire Northwest, and causing annoying delays in mails and in the delivery of merchandise. These storms have also checked outdoor work, and consequently have caused a falling off in the demand for staple goods. Trade in the city has also been badly affected by the stagnation in the building trade from the continuance of the labor troubles, and in addition to that the machinists' strike is now checking the demand from manufacturing establishments for certain classes of material. The movement of general Hardware, notwithstanding, is quite good, evidently caused by the shortage of stocks in the hands of dealers throughout the Northwest. The high prices have for sometime prevented the dealers from ordering any excess above their current wants, and they are therefore steadily compelled to send in orders to supply their daily demands. The Heavy Hardware jobbers practically report their trade in the same condition. They have been perhaps worse sufferers from the labor troubles in the city of Chicago, which cut off a large trade among the manufacturers. The demand from the Carriage trade is now beginning to make its appearance, however, and it is expected that the movement of material in this direction will help to even things. The demand is coming in for Axles, Springs, Tires, and Carriage Furnishings generally.

St. Louis.

Unusual snow storms, accompanied by sleet, in some sections retarded trade activity to a marked degree. It is by this time very generally known that mails were as much as 24 hours late, and many trains on schedules had to be abandoned. The demand for snow tools was sharp and brisk, and from nature of conditions the local Hardware stores in all places were benefited. Railroads and municipalities were forced to employ a vast army of men, and though a week has passed streets are not yet

free of slush. In St. Louis a considerable movement of Galvanized Telephone and Telegraph Wire, also Electric Wire, took place, as sleet was particularly trying and destructive on overhead wiring. Business this week has been of better volume and wants that were forcibly held up last week have been sent forward. Southern buying has been satisfactory, and promises well for the nearby future. Plow goods are especially sought for. New prices on Whips of all kinds are expected, past quotations having been withdrawn. On the whole conditions are unchanged. Wire Nails are interesting dealers at full prices, it is claimed. Locally some little disturbance is mentioned through low prices made by people outside the Hardware trade, but inquiry develops that orders presented for full assortments cannot be handled.

Notes on Prices.

Wire Nails.—A seasonable business is being done in Wire Nails, with a firm market. The advance in price which was anticipated by some has not yet taken place. Manufacturers' quotations are as follows, f.o.b. Pittsburgh; terms, 30 days, 1 per cent. off in ten days:

To jobbers in carload lots.....	\$3.20
To jobbers in less than carload lots.....	3.22½
To retailers in carload lots.....	3.35
To retailers in less than carload lots.....	3.45

New York.—The local demand for Wire Nails continues in about the same volume as for some time past. An improved condition of the market is the absence of irregularity in the price of small lots of Nails from store, prices recently agreed upon by jobbers being adhered to. Quotations are as follows:

To retailers, carloads on dock.....	\$3.53
To retailers, less than carloads on dock.....	3.66
Small lots from store.....	3.60

Chicago, by Telegraph.—An erroneous report secured widespread circulation last week that the American Steel & Wire Company had advanced Wire Nails 25 cents per keg and Wire 20 cents per 100. This immediately stirred up considerable inquiry and correspondence, and probably stimulated trade when buyers learned that no advance had been made. They evidently concluded that it was possible that another advance might be made and it would be well to take in some additional stock at current prices. The company have given no sign as to their intention in the near future, but the impression is still strong in the trade that an advance will be made at an early date. Jobbers report a moderate improvement from stock, which is smaller than it has been on account of the inclement weather. Prices are maintained on the basis of \$3.53, Chicago, for single carload lots and \$3.63 for small lots from stock.

St. Louis.—Weather conditions affected sales somewhat and nothing of importance transpired. Prices show no change and are reported firm. Quotations continue at \$3.58, base, St. Louis, single carloads; small quantities, \$3.68, base.

Pittsburgh.—The demand for Wire Nails is referred to as being very satisfactory, the trade placing liberal orders in view of spring trade now at hand and also in anticipation that prices may be higher. The tone of the market is firm, and we quote Wire Nails, f.o.b. Pittsburgh, terms 30 days, 1 per cent. off in ten days, as follows:

To jobbers in carload lots.....	\$3.20
To jobbers in less than carload lots.....	3.22½
To retailers in carload lots.....	3.35
To retailers in less than carload lots.....	3.45

Cut Nails.—No change in price was made by the manufacturers of Cut Nails at their meeting last week.

Recent weather conditions have been unfavorable for even a normal consumption of Nails, but demand is considered satisfactory for the season. Quotations are as follows, f.o.b. Pittsburgh, terms 30 days, 1 per cent. off in ten days:

1000 kegs and over.....	\$2.50
Carload lots.....	2.55
To jobbers in less than carload lots.....	2.60
To retailers in less than carload lots.....	2.70

New York.—No change has occurred in the condition of the local Cut Nail market since last week. Jobbers are congratulating themselves upon the uniformity with which the price of small lots of Nails from store is maintained. As two months have elapsed since manufacturers advanced prices stocks of low priced Nails have become about exhausted, making it much easier to hold to the price recently agreed upon by jobbers. Regular quotations are as follows:

To jobbers in carloads lots on dock.....	\$2.73
To jobbers in less than carloads on dock.....	2.78
To retailers in less than carloads on dock.....	2.90
Small lots from store.....	2.80

Chicago, by Telegraph.—Some disappointment is expressed at the volume of business in Cut Nails, as the belief for some time has been strong that the difference in prices between Wire and Cut Nails would cause a heavier demand for the latter. Trade, however, has continued to be of only a moderate character. Small lots from jobbers' stocks are still held at \$2.90.

St. Louis.—The usual business is reported at jobbers' price of \$2.90, base, St. Louis.

Pittsburgh.—The Cut Nail manufacturers met in Cincinnati on Wednesday, February 28, and reaffirmed February prices on Cut Nails for March. Demand for Cut Nails is dull and mostly for small lots. We quote, f.o.b. Pittsburgh, terms 30 days, 1 per cent. off in ten days, at \$2.50 for 1000-keg lots or over, \$2.55 for carload lots and \$2.70 for less than carload lots, all f.o.b. cars. Pittsburgh.

Barb Wire.—The quantity of Barb Wire contracted for up to the present time shows a considerable falling off, compared with former years. March usually finds manufacturers unable to ship Wire rapidly enough to satisfy the urgent demand of buyers. A marked difference is noticeable at the present time. The market, however, is firm at the following quotations for domestic trade, f.o.b. Pittsburgh, net cash, or 1 per cent. off in ten days:

To jobbers in carload lots, Painted.....	\$3.65
To jobbers in carload lots, Galvanized.....	3.80
To jobbers in less than carload lots, Painted.....	3.67½
To jobbers in less than carload lots, Galvanized...	3.82½
To retailers in carload lots, Painted.....	3.80
To retailers in carload lots, Galvanized.....	3.95
To retailers in less than carload lots, Painted....	3.90
To retailers in less than carload lots, Galvanized..	4.05

Chicago, by Telegraph.—Manufacturers are enjoying a very good trade in Plain Wire, which is in excellent demand from large buyers, especially from manufacturers.

The demand for fencing, however, has been smaller than usual at this season, although manufacturers are looking forward to a heavy spring business when it does come on account of the recent lack of demand. The weather for a considerable time has been such that no out door work, such as fence making, could be carried on. Winter is much more severe now than during January and February. Quotations are as follows, Chicago delivery: Single cars of Plain Annealed Wire, \$3.38; Painted Barb Wire, \$3.98; Galvanized Barb Wire, \$4.13, with 10 cents additional for small lots from jobbers.

St. Louis.—Demand lighter, but not disappointing. Season is not on for extensive purchases, and weather conditions have also contributed to slow down sales. We quote Painted in carloads at \$4.03, lesser quantities at \$4.13, with 15 cents to be added for Galvanized.

Pittsburgh.—Buyers are placing orders for small lots and for immediate requirements. The high prices on Wire are restricting demand. For domestic trade we quote Painted Barb Wire at \$3.65 in carload lots to jobbers, with an advance of 15 cents for Galvanized, all f.o.b. Pittsburgh; terms 30 days or 1 per cent. off for cash in ten days.

Smooth Wire.—The tone of the Smooth Wire market continues strong, with a good demand. The following are quotations, f.o.b. Pittsburgh; terms 30 days, or 1 per cent. off in ten days:

To jobbers in carload lots.....	\$3.05
To jobbers in less than carload lots.....	3.07½
To retailers in carload lots.....	3.20
To retailers in less than carload lots.....	3.30

Pittsburgh.—Demand for Smooth Wire is increasing. The market is strong and we quote, f.o.b. Pittsburgh; terms 30 days, or 1 per cent. off in ten days:

To jobbers in carload lots.....	\$3.05
To jobbers in less than carload lots.....	3.07½
To retailers in carload lots.....	3.20
To retailers in less than carload lots.....	3.30

Toe Calks.—Under date March 1 Rhode Island Perkins Horseshoe Company, Providence, R. I., withdraw previous quotations and announce the present price on Perkins' Toe Calks as 5 cents per pound for Blunt and 5½ cents per pound for Sharp, f.o.b. mill, Valley Falls, R. I., subject to a discount of 1 per cent. for cash in ten days.

Wrought Iron Pipe.—We give below the current discounts on Merchant Pipe, Screw and Socket Casing and Iron Boiler Tubes in accordance with the system of prices recently adopted by the manufacturers, to which we have already made reference. The discounts given apply to the new lists which went into effect March 1 and were published in *The Iron Age* of that date. It is intended that the goods will be sold at prices varying according to geographical location, prices being based upon Pittsburgh and gradually advancing in accordance with the distance from Pittsburgh. The quotations given are for carload lots to jobbers, smaller lots commanding higher prices:

		Black Merchant Pipe.			
		Pittsburgh.	Philadelphia.	Boston and East St. Louis.	New York and Chicago.
		Per cent.	Per cent.	Per cent.	Per cent.
¾" and 1".....		25, 10, 5 and 2½	25, 10, 5 and 1	25, 10 and 4	25, 10 and 5
1".....		25, 10, 10, 10, 5 and 2½	25, 10, 10, 10 and 5	25, 10, 10, 10 and 3	25, 10, 10, 10 and 4
1½".....		30, 10, 10, 10, 10, 5 and 2½	30, 10, 10, 10, 10 and 4	30, 10, 10, 10, 10 and 1½	30, 10, 10, 10, 10 and 2½
2".....		30, 10, 10, 10, 10 and 10	30, 10, 10, 10, 10, 5 and 2½	30, 10, 10, 10, 10 and 5	30, 10, 10, 10, 10, 5 and 1½
2½" to 4" inclusive.....		30, 10, 10, 10 and 10	30, 10, 10, 10 and 9	30, 10, 10, 10 and 7	30, 10, 10, 10 and 8
NOTE.—Galvanized pipe is 15 points less discount in the base; thus if Black base is 25 per cent. Galvanized base will be 10 per cent.					
		Screw and Socket Casing.			
2".....		30, 5 and 3½	20, 5 and 1½	20 and 5½	20, 5 and 1
2½" to 3½" inclusive.....		30, 10, 10 and 4	30, 10, 10 and 3	20, 10 and 10	20, 10, 10 and 1½
3½" to 4½" inclusive.....		30, 10, 10 and 4	30, 10, 10 and 2	30, 10 and 10	30, 10, 10 and 1
4½" to 6" inclusive.....		30, 10, 10, 10 and 6½	30, 10, 10, 10 and 3½	30, 10, 10, 10 and 1½	30, 10, 10, 10 and 2½
6".....		30, 10, 10, 10 and 1	30, 10, 10 and 8½	30, 10, 10 and 7	30, 10, 10 and 8
Inserted Joint is 10 per cent. higher than S. & S.					
		Iron Boiler Tubes.			
1" to 1½" inclusive.....		30, 5 and 1	20 and 4	20 and 2½	20 and 3½
1½" to 2½" inclusive.....		30, 10 and 2½	20, 10 and 1	20, 5 and 4	20 and 10
2½" to 3" inclusive.....		30, 10, 10, 10 and 1½	30, 10, 10, 5 and 4	30, 10, 10, 5 and 2½	30, 10, 10, 5 and 3
3" and 9 to 18 inclusive.....		30, 10 and 4½	30, 10 and 2	30, 5, 5 and 1	30, 10 and 1½
Steel Boiler Tubes about 5 per cent. net less than Iron.					

Shot.—Under date March 5 an advance has been made in the price of Shot in the East, present printed quotations being as follows, terms net cash 30 days or 2 per cent. discount for cash in 10 days, with the usual abatement of 40 cents per 100 pounds (10 cents per bag) on ton lots:

	Per bag.
Drop Shot, sizes smaller than B, 25-pound bags,....	\$1.50
Drop Shot, B and larger sizes, 25-pound bags.....	1.75
Buck Shot, 25-pound bags.....	1.75
Chilled Shot, 25-pound bags.....	1.75
Dust Shot, 25-pound bags.....	2.10

Glass.—There is little if any demand for Window Glass from jobbers. Merchants seem to feel that they can safely wait until spring demand commences before stocking up. The Eastern branch of the Window Glass Jobbers' Association have adopted the following prices for small lots from store, covering the territory east of the Alleghenys: The first bracket single strength, 85 and 10 per cent. discount; all above, single strength, 85 and 15 per cent. discount; all double strength, 85 and 20 per cent. discount. Factory prices for carload lots continue as follows:

Single strength:	Per cent.
First Bracket.....	85 and 25
Second and Third Brackets.....	89
All above.....	90 and 5
Double strength:	
First five Brackets.....	89
60-inch Bracket.....	90
70 to 100 inch Brackets, inclusive.....	90 and 10 and 5
All above.....	90 and 20

Jobbers are beginning to receive the stocks of Glass purchased from the American Window Glass Company in February.

Paris Green.—Current demand for Paris Green is light. Contract orders have been placed to some extent, but not proportionate to the usual requirements of the country. Considerable Green was carried over last season, which will partially supply the early requirements of consumers. The market is firm at the following quotations:

	Cents.
In Arsenic kegs or casks.....	13
In kegs, 100 to 175 pounds.....	13½
In kits, 14, 28, 56 pounds.....	14½
In paper boxes, 2 to 5 pounds.....	14½
In paper boxes, 1 pound.....	15
In paper boxes, ½ pound.....	16
In paper boxes, ¼ pound.....	17

Paints and Colors.—*Leads.*—During February the demand for Lead products was exceptionally good for the month. The cost of raw materials is relatively higher than that of White Lead in Oil, the market for which is characterized by a firm tone. Quotations for White Lead in Oil are as follows: In lots of less than 500 pounds, 7 cents; in lots of 500 pounds and over, 6½ cents per pound.

Oils.—*Linseed Oil.*—The demand for Linseed Oil is but moderate on new business. Crushers are engaged in filling contract orders. But few of the independent mills are in operation, and it is understood that none of them have bought Seed since the price was forced above \$1.20 per bushel. The price ruling is from \$1.57 to \$1.60, according to time of delivery. The trade are buying Oil in small quantities to cover actual requirements, and will probably continue to do so while present prices continue. Quotations are as follows: City Raw, 56 cents in lots of five barrels or more and 57 cents in lots of less than five barrels. Out of town brands are 2 cents per gallon less. Calcutta Raw Oil is held at 68 cents per gallon.

Spirits Turpentine.—The local Turpentine market has been dull during the past week. A strong market at Savannah caused an upward movement in prices, and Turpentine is now held at 56 cents for Southern and 56½ cents for machine made barrels. Prices have been well sustained in view of the near approach of the new crop, which is due during April.

Hardware Organizations.

New England Hardware Dealers' Association.

The annual meeting of the New England Hardware Dealers' Association will be held at the United States Hotel, Boston, on Wednesday, March 14, being preceded by the usual dinner. Committees will be elected for the ensuing year. The principal guest of the association will be Charles Clark Adams of Sargent & Co., New Haven, Conn., who will entertain the members with reminiscences of his travels at home and abroad.

The association will also discuss "The Advance in Prices and Its Effect on the Hardware Trade." Owing to the early adjournment of their last meeting several members who had been invited to express their views on this subject were not called upon, and it is hoped that they will be heard from on the 14th.

Messrs. Van Buskirk and Mansfield will entertain the association with music.

The Entertainment Committee in charge of the meeting are Austin H. Decatur and Hiram W. Colton of Boston and E. M. Richardson of Waltham.

New England Iron and Hardware Association.

The arrangements for the annual dinner of the New England Iron & Hardware Association to be held in Boston, March 20, are practically completed. The following invited guests of the association will probably be present and make speeches: Henry M. Whitney, president of the New England Gas & Coke Company; Rev. Edward A. Horton; Robert A. Boit, president Boston Associated Board of Trade; Charles E. Adams, president Massachusetts Board of Trade; John Bindley, president National Hardware Association; T. James Fernley, secretary-treasurer National Hardware Association; Rear-Admiral Sampson, Lieut. Bennett, U. S. N.; Henry Hopkins, and William N. Hart, Mayor of Boston. A large attendance of members and their friends is already assured and the dinner promises to be the most successful in the history of this organization.

Michigan Hardware Association.

The annual convention of the Michigan Hardware Association will be held in Detroit, beginning July 11. The sessions will be held at the Hotel Cadillac. It has been decided that there shall be no local subscription taken up for the entertainment of the members, but that the association shall pay all expenses.

Sixth Annual Sportsmen's Exposition.

THE sixth annual exposition of the Sportsmen's Association opened at the Madison Square Garden, New York, Thursday, March 1, and will continue (Sundays excepted) until the night of March 17.

The management have endeavored to make it as realistic and spectacular as possible, rather than a trade exhibit, the woods, lake, cabins, game, fish, canoes, tent and camp scenes being grouped in the body of the building, while the exhibits of Sporting Goods are shown in the first gallery, about 10 feet above.

At the east end of the Garden is a magnificent drop of huge size representing "Sunrise in the Yosemite Valley," with a large foreground of rocks, trees, water falls, &c., not omitting wild animals, such as bear, goats, &c., properly secured. Immediately in front of this scene is a lake or pool, in which Indians and aquatic athletes exhibit their skill in canoeing, championship contests, &c.

There are exhibits showing the advantages of the various sections, including the Adirondacks, Canada and other sections West and South, with a number of cabins as headquarters for guides and sportsmen.

In the center of the amphitheater are the game parks, beaver dams, fish tanks and hatcheries, cages of carnivorous game animals, coops of brilliantly plumed

birds, the canoe camp, collections of sportsmen's and hunters' craft, small yachts and ice boats, &c. There is trap shooting on the roof every day, and rifle, revolver and pistol matches in the ranges in the wings. The live game exhibit includes some rare animals, together with elk, buffalo, deer, antelope, gazelles, bear, foxes, raccoons, badgers, wild boars, squirrels, pumas, muskrats, &c. There is a fine musical programme every afternoon and evening.

National Retail Hardware Association.

TO the conference at the Sherman House, Chicago, on March 12, called for the purpose of discussing the formation of a national retail Hardware association, a cordial invitation to attend is extended to merchants in States where no State associations exist. Nearly all of the States which have organizations will be represented at the meeting by one or more of the principal officers, but Z. T. Miller of Bloomington, Ill., president of the Illinois Association, who is conspicuous in this movement, is also desirous of having representative merchants from unorganized States in attendance.

The Michigan Hardware Association have selected the following delegation to attend the conference: President F. W. Weber; Vice-President W. J. Boyce; Secretary-Treasurer Fred. H. Cozzens, and Messrs. Webber and Bock.

Among the Hardware Trade.

W. H. Haish has succeeded Haish & Morrissey in the Hardware, Stove, Farm Implement, Lumber and Building Material business at Malta, Ill.

Lance & Conlon, Roseville, Ill., have lately succeeded Rufus Lance. Their stock is new throughout. A line of groceries has just been added.

Luther S. Eaton has retired from the firm of Eaton, Chase & Co., Norwich, Conn. The business will be continued under the same style by the remaining partners, Albert H. Chase, Loue E. Stockwell and Dwight H. Hough. This is said to be the oldest Hardware store in New England, the business having been established in 1764, since which time the same building has been occupied. Mr. Eaton's connection with the house dates back 34 years, while the other gentlemen comprising the firm have been identified with them from 35 to 40 years. The business is both wholesale and retail, and includes Shelf and Heavy Hardware, Iron and Steel, Agricultural Implements, Sporting Goods, Bicycles, Electrical Supplies, Wagon Makers' and Blacksmiths' Supplies, &c.

John V. Russell has succeeded Henry P. Everett at Stockbridge, Mich., in the retail Hardware, Stove and Sporting Goods business.

F. E. Palmer of the Hardware firm of Palmer & Lipincott, Columbus Grove, Ohio, has disposed of his interest to his brother, D. R. Palmer, and the business is being continued without change in style.

J. P. & R. B. Peck, wholesale dealers in coal, grain, produce, &c., Shortsville, N. Y., are now identified with the Hardware business, having purchased the stock of Delaney & Co., which they have moved to new quarters.

Wissler & Purdum have succeeded N. Purdum & Co., retailers of Hardware, Agricultural Implements, Electrical Goods, Harness, &c.

W. E. Reed, St. Mary's, W. Va., will soon commence the erection of a new building for the accommodation of his business.

E. N. Sewell has succeeded Rowell & Sewell, dealers in Hardware and Farm Implements, Blairsburg, Iowa.

Kanters & Standart have succeeded Kanters Bros., Holland, Mich.

John A. Miller, wholesale and retail Hardware, Farm Implements, Stoves, Sporting Goods, &c., Muskegon, Mich., will soon remove to a new block, larger and more centrally located than the old quarters.

Higginbotham Company have purchased the wholesale and retail business of Crouse & Leonard, Stephenville, Tex. They have made an addition to the former store, so that the dimensions of the establishment are now 78 x 110 feet.

Goldsberry & Coe have succeeded F. E. Goldsberry & Co., Athens, Ohio. The firm are doing a cash business and are pleased with the results so far.

Stewart & Barkley have succeeded Chas. Stewart at Robinson, Ill. The firm are wholesalers and retailers of Hardware, Farm Implements, Vehicles, &c. They have just completed a new brick building, 50 x 120 feet.

J. R. Stevenson has succeeded Willis & Stevenson in the Hardware, Stove and Agricultural Implement business at Pomeroy, Wash.

O. K. Paup is successor to Evans & Paup, North English, Iowa.

Mr. Thompson has retired from the firm of Thompson & Randlett, Dallas, Texas, and the style is now S. L. Randlett.

H. W. Blackwell is successor to Blackwell & Co. at Gladstone, Mich.

A. A. Hamilton & Son, Oskaloosa, Iowa, have been succeeded by Hamilton & Hamilton, V. E. Hamilton, who has been on the road for Hibbard, Spencer, Bartlett & Co. for the past six years, succeeding A. A. Hamilton.

W. T. Haggard has purchased a half interest in I. L. Rinehart's Hardware business, Deland, Ill., and the style has become Rinehart & Haggard.

Wm. Warnock is successor to Warnock Bros., Battle Creek, Iowa.

B. Ryerson, Elliott, Ill., has sold out to Hill Bros., who are continuing at the old stand.

Morford & Rogers have purchased the business of Morford, Rogers & Co., McMinnville, Tenn.

Davis & Caston have bought out the Hardware business formerly conducted by J. W. Mitchum & Sons, Park Springs, Texas.

Thos. Larson Hardware Company have succeeded Larson & Gilman, Eldora, Iowa, dealers in Shelf and Heavy Hardware, Stoves, Tinware, &c.

J. F. Wood & Co. have lately opened up in the wholesale and retail Hardware, Stove and Tinware business at Clarksville, Tenn. They occupy quarters which have been specially fitted up for their use.

Jeremiah Miller has purchased the Hardware business of S. C. Pederson, Elkhorn, Iowa.

G. B. Randle, formerly of Rockdale, Texas, has purchased the Hardware, Buggy and Agricultural Implement business of John L. Cleveland & Co., Cleburne, and is continuing at the old stand.

J. A. Mause has purchased the business of Stoner & Mills, West Alexandria, Ohio.

Shaw & Stedman are successors to C. M. Shaw, Woodhull, Ill.

Charles Coates is successor to Zimmerman Bros. & Alger, Pontiac, Mich.

Geo. W. Johnson & Co. have purchased C. M. Dies' business at Petaluma, Cal. The new proprietors are making improvements in the store, rendering it more convenient and attractive.

Judd & Colby are successors to Elmer Judd, New Lothrop, Mich.

W. E. Penny is preparing to open up in the Shelf Hardware, Stove, Tinware and House Furnishing Goods business in Lima, Ohio. Mr. Penny will have an entirely new stock and building and expects to be ready for business by April 1.

A. P. Dearing, dealer in Wagons and Buggies, Athens, Ga., has added a line of Hardware.

Good & Dana have purchased Willis Good's Hardware and Farm Implement business at Kewanee, Ill. A number of improvements have been made in the store by the new owners.

Carlock Bros. are now conducting the business formerly carried on by A. J. Nichols, Ben Franklin, Texas.

The Hadley & Bower Company, Trumansburg, N. Y., have recently been incorporated with a capital stock of \$10,000. The incorporators are F. E. Hadley, D. Dumont Bower and Ossian G. Noble.

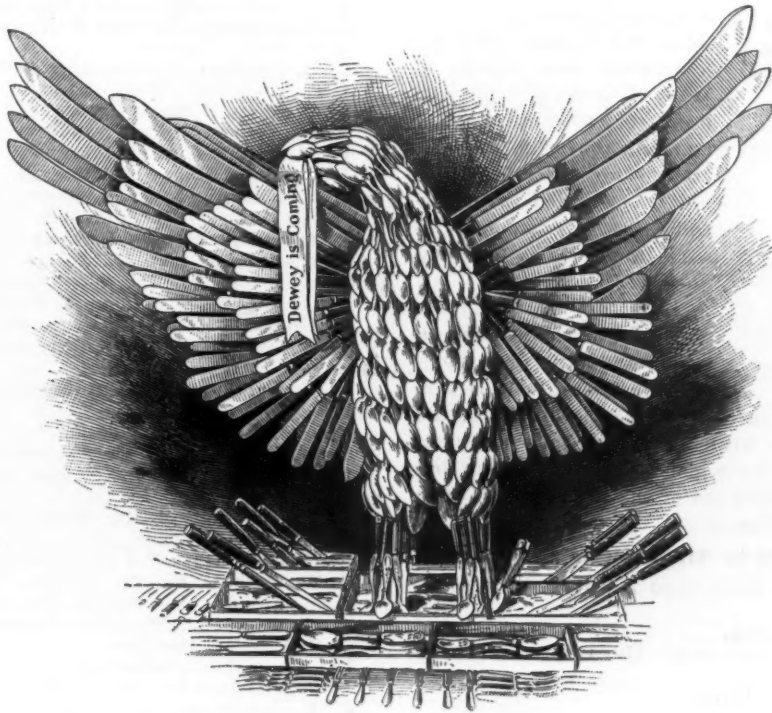
Robison & Moore, Urbana, Ohio, have dissolved and the business is now carried on under the style of Hardware Supply Company, the parties interested being James S. Robison, J. H. Moore and T. W. Atwood.

Henry W. May and Wm. F. Neal have purchased the Hardware business formerly conducted by Fred. S. Pills-

The American Eagle.

The accompanying cut of the American Eagle, made up of American goods, represents the striking feature of a window display of Table Cutlery and Silver Plated Ware, arranged by John Watson, Hardware merchant, Houlton, Maine. The eagle was 3½ feet high, and the spread from tip to tip was about six feet. It was constructed of Iron Handled Knives and Forks and Butcher Knives and Tinned Dessert and Table Spoons. It stood in an elevated position upon a pile of goods contained in original packages, including Silver Plated Knives and Spoons. There were also Spoons and Carvers surrounding its feet, as shown in the cut. From either side of the elevation extended a line of Silver Plated Spoons in boxes. The remainder of the floor of the window was covered by parallel rows of Table Knives and Forks alternately, laid upon cloth.

At each side of the window, near the back, were suspended circular designs formed of Spoons with the



The American Eagle.

bury, West Derry, N. H., and will continue under the style of May & Neal Hardware Company.

Allen & Lotts, Boston, Mass., retail Hardware dealers, have removed to 169 Summer street. Their new store is located on the main street leading from the new South Union Station to the busiest portion of Boston, and is one minute's walk from the station. This firm occupied their former location on Washington street for 27 years.

R. S. Jacobs, for years connected with the Winship Machinery Company, Atlanta, Ga., has purchased A. L. Frick's interest in the Hardware firm of Gilpin & Frick, Oklahoma City, O. T., and the style will be hereafter Gilpin & Jacobs. The new firm will continue the business on the same lines, but on a larger scale. Mr. Frick will remove to Joplin, Mo., where he has large mining interests.

The G. T. Rock Hardware Company, Lake Charles, La., have been incorporated with a paid up capital of \$20,000, and will continue the Hardware and Crockery business formerly conducted in the name of G. T. Rock. Mr. Rock will act as manager. The company are now completing plans for the erection of a new brick building, which they will occupy in connection with the old quarters, thus largely increasing their facilities, which are at the present time overtaxed. The new building will be 25 x 160 feet, and combined with the present structure, 30 x 80 feet, will make an establishment of large dimensions.

bowls up, producing a crown effect. From these various kinds of Carving and Butcher Knives were hung. Across the back of the window, in an upright position, was a mirror extending part of the way up, reflecting the display. Above the mirror, upon a dark background, were hung Jack and Safety Chain at regular intervals, to which bright goods were attached.

This attractive exhibit illustrates the very excellent work done by Mr. Watson in the way of window arrangement, a matter to which he gives a good deal of attention as an efficient means of winning trade.

Trade Items.

GEO. W. TROUT of Chicago has gone to Florida with his family to enjoy a much needed vacation. For the past seven years Mr. Trout has had no relief from the cares of business, having devoted himself unceasingly to the attainment of a good footing in the wholesale trade. This has been accomplished and he can now give himself a little relaxation.

PATTERSON, GOTTFRIED & HUNTER, 146-150 Centre street, New York, are sending out as an advertisement a pocket map of the South African Republic, Orange Free State and Cape Colony, in size 11½ x 9 inches. This is in connection with their Nicholson, Great Western and X. F. Files, for which they are distributors.

The Ohio Hardware Association.

(Continued from Our Last Issue.)

THE gathering of Hardware merchants at Cleveland at the sixth annual convention was in many respects a notable one. In the matter of numbers, it probably brought together the largest assemblage of members of any similar association thus far, the register of actual members showing more than 400 in attendance. Besides these there were many who, while identified

with the association, were not able conveniently to be present at the meeting.

The representative character of the membership was obvious, the convention impressing those who were permitted to meet with the association and listen to their discussion with the progressiveness, ability and standing of the merchants. Many were obviously prominently identified with the trade and accustomed to take broad views of trade questions.

Each of the members was given a badge, such as is represented in the accompanying illustration. It was

made of white ribbon, on which were the initials of the name of the association, attached to a button containing the member's number, by which he could be identified by reference to the printed list of the membership. The following is the official list of

Members in Attendance.

H. C. Wiseman, the Springfield Hardware Company, Springfield.
 John F. Baker, Dayton.
 D. Tallmadge, the Tallmadge Hardware Company, Columbus.
 H. A. Harger, Canal Dover.
 R. W. Briggs, Frankfort.
 Tom S. Morris, Lima.
 O. B. Ervin, Jackson.
 G. C. Miller, Cardington.
 Smith DeMuth, Cardington.
 J. P. Duffy, Greenville.
 H. G. Woodward, Sidney.
 A. D. Hogendobler, Osborn.
 J. D. Miller, Forest.
 G. W. Wiley, New Madison.
 E. T. Wenger, Eldorado.
 H. C. Mylander, Oak Harbor.
 W. C. Starr, Starr & Arner, Clyde.
 W. H. Houk, Laughlin & Houk, Carey.
 J. M. Martin, Martin & Wineland, McComb.
 Chas. H. Harner, Nichols & Harner, Bellefontaine.
 Geo. M. Gray, Coshocton.
 M. A. Griffith, Madisonville.
 O. M. Scott, Marysville.
 Geo. Hartke, Cincinnati.
 Felix Bahlmann, Kruse & Bahlmann Hardware Company, Cincinnati.
 John S. Spoerl, Hamilton.
 Alex. Grant, Antwerp.
 Henry F. Rahe, the Mitchell Bros. Company, Cleveland.
 W. G. Brown, Howell, Gano & Co., Cincinnati.
 H. F. Wuenker, Fellers & Wuenker, Cincinnati.
 Aug. E. Lindemann, Cincinnati.
 Louis Koehl, Cleveland.
 Frank Harrison, the Stollberg & Clapp Company, Toledo.
 F. C. Thornton, Cleveland.
 Chas. Michel, Cleveland.
 Herman Holcker, R. & H. Holcker, Crestline.
 R. Holcker, Crestline.
 Horace Hunsecker, Pouchot, Hunsecker & Co., Akron.
 E. Barth, Akron.
 W. H. Cole, Acker & Cole, Fayette.

Charles Boebinger, president the Boebinger Hardware Company, Cincinnati.
 C. A. Wikel, M. E. Kriss, Huron.
 Wm. H. Botten, Cleveland.
 Fred. Pollack, Cleveland.
 John Plummer, Bellefontaine.
 H. P. Davidson, Cleveland.
 J. Q. Riddle, the Lockwood-Taylor Hardware Company, Cleveland.
 J. G. Dole, J. G. Dole & Son, Ravenna.
 Robt. Armatage, Attica.
 F. B. Easton, Bellefontaine.
 John Gerhold, Mogadore.
 C. B. Churchill, Osborn & Churchill, Bellefontaine.
 F. A. Fusselman, Edgerton.
 Adam Strome, Strome Bros., Warsaw.
 E. E. Barch, Elyria Hardware Company, Elyria.
 C. McLaughlin, Vernier & McLaughlin, Archbold.
 E. S. Perry, Fayette.
 Chas. Gassman, Gassman Bros., Findlay.
 J. H. Frederich, North Amherst.
 E. S. Perry, Perry & Parsons, Leipsic.
 H. N. Askam, Brobst, Askam & Eckhardt, Findlay.
 W. L. Stouffer, H. D. Stouffer, North Baltimore.
 J. J. Harter, Harter & Milar, Akron.
 J. M. Kinsey, Cantwell, Kinsey & Elder, Kenton.
 Frank A. Bare, Remy & Bare Bros., Mansfield.
 R. L. Spotts, Canton Hardware Company, Canton.
 U. H. Gurnea, Lion Hardware Company, Springfield.
 James J. Wood, Jr., Wood Bros., Springfield.
 A. G. Nofzinger, Benclar & Nofzinger, Stryker.
 A. Housel, Morris Hardware Company, Cleveland.
 J. W. Banting, the Banting-Sanders Company, Elmore.
 J. F. Sanders, the Banting-Sanders Company, Elmore.
 Geo. G. Brown, Cleveland.
 Chas. S. Carr, A. M. Carr & Son, Salem.
 Will M. Crummerie, Salem Hardware Company, Salem.
 J. H. Thompson, the Stambaugh-Thompson Company, Youngstown.
 E. C. Gast, Gast & Lang, Fremont.
 S. W. Park, S. W. Park & Co., Warren.
 F. W. Geddes, the Jahant Company, Akron.
 E. F. Wineland, Martin & Wineland, McComb.
 C. S. Frazier, Dresden.
 Benjamin Coe, Coshocton.
 B. Worth Ricketts, Coshocton.
 C. F. Blackman, G. W. Blackman & Sons, Painesville.
 F. W. Ingalls, the Bryan Hardware Company, Bryan.
 J. K. Milligan, Bellefontaine.
 Robt. E. Doolittle, Doolittle Bros., Painesville.
 F. L. Head, F. L. Head & Co., Niles.
 B. W. Crobaugh, Crobaugh & Dahm Hardware Company, Tiffin.
 C. E. Barnum, Geneva.
 J. N. High, Seville.
 J. H. Kauke, Wooster.
 David Huyck, Swanton.
 J. F. Crisman, Crisman Bros., Delta.
 Henry Blecking, Cleveland.
 Mell B. Talmage, Talmage Bros., Mt. Gilead.
 S. W. Wilson, Mt. Gilead.
 G. B. Hatfield, H. L. Hatfield & Bro., Troy.
 S. O. Manchester, the Manchester Company, Canfield.
 W. Bird, Mt. Vernon.
 Wm. H. Adams, East Liverpool.
 Wm. Witte, Witte & Co., Haskins.
 Gustavus Jaeger, Elmore.
 J. H. Faunce, Cortland.
 J. T. Evans, Evans & Howland, Plain City.
 J. W. Lang, Lang Bros., Manchester.
 S. L. Irwin, Tontogany.
 Robt. P. Jones, Thos. P. Jones & Son, Lima.
 Roy E. Loomis, G. W. Loomis & Co., Bowling Green.
 H. G. Hernicle, Cleveland.
 L. B. Sanford, L. B. Sanford & Co., Atwater.
 H. H. Woolf, Atwater.
 T. H. Artress, Lorain.
 N. C. Alten, Lorain.
 O. H. R. Kale, Salem Hardware Company, Salem.
 J. A. Meinrding, Schroeter & Meinrding, Ft. Recovery.
 A. Schwertner, B. Schwertner, Cleveland.
 E. P. Collins, Lodi.
 Chris Lude, Lude & Egger, Woodsfield.

- E. A. Everman, Toledo.
 L. W. Loomis, the L. W. Loomis Hardware Company, Cuyahoga Falls.
 I. L. Loomis, Cuyahoga Falls.
 W. J. Wolford, Wolford & Burkholder, Spencerville.
 G. J. Hehrle, G. H. Herringshaw Company, Cleveland.
 O. B. Schriver, O. P. Schriver & Co., Cincinnati.
 John Haas, Mantua.
 O. O. Alspach, with J. H. Kauke, Van Wert.
 E. L. Durlin, Herring.
 T. U. Bodell, Harrod.
 Will C. Jones, Jones, Williams Hardware Company, Columbus.
 Dan L. Jones, D. L. Jones & Co., Newark.
 A. L. Pipes, Fulton.
 James F. Wright, Worthington.
 A. C. Spetnagel, Spetnagel Hardware Company, Chillicothe.
 H. L. Wheaton, Hibbard Hardware Company, Athens.
 T. A. Castell, Murray.
 L. G. Church, Church Bros. & Weld, Marysville.
 C. M. Wheaton, Wheaton & Cockrell, Sunbury.
 C. E. Kennard, Alger.
 G. A. Tinnerman, Tinnerman, S. R. Company, Cleveland.
 Frank Flebeger, May & Flebeger, Akron.
 John C. Cone, manager F. R. Williams, Cleveland.
 J. C. Conwell, Xenia.
 O. L. Davis, the Smith Hardware Company, Columbus.
 C. B. Burr, Blackwood, Green & Co., Columbus.
 G. V. Guyton, Ada.
 Albert Zettler, Zettler Hardware Company, Columbus.
 S. W. Gano, Howell, Gano & Co., Cincinnati.
 H. Roney, Roney & Shearer, Dayton.
 F. M. Potter, Cleveland.
 J. G. Reid, the Pierson & Reid Hardware Company, Greenville.
 J. F. Kemmerling, Perfection Furnace Pipe Company, Toledo.
 I. M. Pierson, the Pierson & Reid Hardware Company, Greenville.
 R. R. Hart, Greenville.
 A. Bretch, Dayton.
 O. B. Conk, Dayton.
 W. E. Frye, Frye & Rex, Crestline.
 D. G. Scott, O. M. Scott & Bro., Marysville.
 D. H. Cassel, Crestline.
 F. Hambarger, Dayton.
 W. W. Osborn, Hunter & Osborn, Mechanicsburg.
 John Kramer, Engle, Kramer & Co., Dayton.
 H. E. Rouse, the M. I. Wilcox Company, Toledo.
 J. A. Krantz, Heldmyer Hardware Company, Elyria.
 J. E. Mellor, Malta.
 D. A. Le Fevre, Le Fevre & Head, Greenfield.
 F. C. Kinneer, New Waterford.
 John Weaver, Weaver & Engle, Covington.
 O. Burger, Bode Hardware Company, Cincinnati.
 E. L. Harris, J. S. Abbott & Co., Columbus.
 Geo. A. Wolf, Wolf & Anderson, Hollansburg.
 W. H. Picking, D. Picking & Co., Bucyrus.
 I. M. Wilson, Elliott & Wilson, Newark.
 H. G. Skinner, Skinner & Richards, Collinwood.
 K. D. Grover, Cleveland.
 B. D. Wlant, Wyant & Hilsinger, Republic.
 Geo. Gillivan, Jas. Gillivan's Sons, West Jefferson.
 John C. Schaible, Coles, Schaible & Smith, Troy.
 T. E. Coles, Coles, Schaible & Smith, Troy.
 Ed. Wedekind, Henry Bredleck, Pt. Clinton.
 W. F. White, Shelby.
 C. E. Krantz, Krantz Hardware Company, Lorain.
 Chas. Farr, Farr & Limcox, Wadsworth.
 Mr. Bryant, Jaeger & Bryant, Genoa.
 F. Hoemmelmeyer, Cincinnati.
 Jacob Fink, Mt. Healthy.
 Wallace Beamer, Campbell, Tope & Beamer, Carrollton.
 D. F. Lash, Bolivar.
 Morris Taylor, East Rochester.
 G. A. Sheets, Hanoverton.
 W. H. Carl, Carl Bros. & Co., Shreve.
 P. J. Thompson, the Stambaugh-Thompson Company, Youngstown.
 Nate Herringshaw, I. H. Herringshaw, Cleveland.
 Isaac Ulery, New Carlisle.
 McCready & Co., Ashland.
 John Winters, Winters Bros., Fremont.
 F. G. Moir, F. A. Powers & Co., Norwalk.
 R. N. Hubbard, the Tallmadge Hardware Company, Columbus.
 T. C. Weir, Toronto Hardware Company, Toronto.
 O. E. Bare, Mansfield.
 G. E. Jefferson, Whitbeck & Jefferson, Norwalk.
 J. P. Cloppert, Cloppert & Spitler, Brookville.
 W. E. Spitler, Spitler & Cloppert, Arcanum.
 J. E. Smith, Caldwell.
 George B. Meyer, Cincinnati.
 E. Tvethang, Cincinnati.
 W. A. Remy, Remy & Bare Bros., Mansfield.
 Jas. B. Carson, Hamilton.
 S. D. Longshore, P. M. Armstrong & Co., Lisbon.
 Arthur E. Riddle, E. W. Blizzard & Co., Wauseon.
 Lou F. Stahler, Waverly.
 S. L. P. Stone, Stone Bros., Urbana.
 E. R. Clark, M. Finan, Paulding.
 J. Fred Niele, P. E. Snyder & Co., Blanchester.
 C. Wland, Pt. Washington.
 A. J. Vernier, Vernier & McLaughlin, Archbold.
 F. H. Whitehorne, Whitehorne Bros., Archbold.
 A. Augsbuger, Kenton.
 Clarence Hart, Spencerville.
 John Lauferswiler, Minster.
 S. A. Haverbeck, Kramer & Haverbeck, Minster.
 T. E. Shuter, Snider & Shuter, Evansport.
 C. C. Fouts, Middletown.
 L. D. Redick, B. K. Redick, Jenera.
 J. C. Wannamaker, Chas. Wannamaker's Sons, Ottoville.
 L. D. Boyer, Swanton.
 G. H. Blattner, Vermillion.
 T. Burgert, Burgert & Banister, Galion.
 J. A. Ebel, Hartville.
 Perry Swinehart, J. A. Ebel, Hartville.
 A. J. Ross, Ross & Avery, Bowling Green.
 W. F. Hafner, Hubert Day, Elyria.
 Geo. H. Whitbeck, Whitbeck & Jefferson, Norwalk.
 J. W. Grimes, Carlisle & Grimes, Cambridge.
 Chas. S. Johnson, Barberton.
 T. A. Powers, T. A. Powers & Co., Norwalk.
 J. H. Ricketts, Coshocton Hardware Company, Coshocton.
 R. T. Hunt, Coshocton Hardware Company, Coshocton.
 C. E. Brigham, Wauseon.
 C. T. Kimmel, Dayton.
 F. W. Jeffries, Hicksville.
 J. Schwertner, Cleveland.
 A. C. Rohrbacker, Rohrbacker & Allen, Akron.
 John Tettelbach, Cleveland.
 Ed. M. Cosley, Harter & Cosley, Troy.
 C. E. Smith, the C. E. Smith Company, Malta.
 J. E. Bunn, Belleview.
 W. P. Bogardus, Bogardus & Co., Mt. Vernon.
 F. W. Jackson, Jackson Hardware Company, Clyde.
 John Henne, Youngstown.
 O. C. Topky, Topky Bros., Ashtabula Harbor.
 S. I. Adams, Adams & Starrett, Wills Creek.
 W. R. Doering, J. H. Doering, Wapakoneta.
 Edward I. Fisher, Fisher Hardware Company, Wapakoneta.
 C. M. Waller, Waller Bros., Ravenna.
 W. S. Perry, Perry & Drake, Zanesville.
 C. M. Bundy, Parkman.
 H. A. Hoffstall, Harding & Co., Wooster.
 W. P. Scott, Morris Hardware Company, McConnellsville.
 Chas. Kuhlman, Kuhlman Hardware Company, Woodville.
 J. E. Plato, J. Wesbecker & Co., North Amherst.
 George Ash, Cosgray & Ash, Carey.
 G. P. Nichols, Bedford.
 Wm. Kell, Woodville.
 Edw. Kell, Wm. Kell & Son, Pemberville.
 John Fett, Bluffton.
 A. D. Lugibihl, Bluffton.
 C. C. Heller, Beaverdam.
 Thomas Walker, Mitchell Bros. Company, Cleveland.
 Martin Striebinger, Cleveland.
 M. V. Wolf, Wolf Hardware Company, Toledo.
 Chas. Schuette, Cleveland.
 J. J. Ewing, Lima.
 J. H. Barch, Barberton Hardware Company, Barberton.
 I. W. Kinney, Wooster Hardware Company, Wooster.
 J. S. Hoopman, E. B. Hoopman & Son, Byesville.
 C. E. Kingseed, Kingseed Bros., Fostoria.
 J. Q. Riddle, E. W. Blizzard & Co., Wauseon.
 W. A. Fearn, Schoedinger, Fearn & Co., Columbus.
 W. C. Bale, Westerville.
 W. B. Maccracken, Maccracken & Winter Hardware Company, Lancaster.
 F. S. Hagan, Hagan & Shad, Marietta.
 O. D. Cussins, Cussins & Fearn, Columbus.
 W. R. Huggett, Huggett & Hill, Columbus.
 J. W. Brown, the Brown & Potter Hardware Company, Washington C. H.
 D. R. Burr, the Kilbourne-Jones Company, Columbus.
 John H. Calkins, W. R. Calkins & Son, Columbus.
 J. M. Blackwood, Blackwood, Green & Co., Columbus.
 E. T. Snyder, Mt. Sterling.
 George Doerson, F. B. Ihrig & Co., Columbus.
 W. H. Standard, Bostwick, Brown & Co., Toledo.
 C. C. Brightman, Lawrence & Brightman, Berea.

C. M. Clouse, Cedarville.
 R. H. Miller, Bellevue,
 J. W. Finniner, Dennison.
 W. W. Farber, Farber & Bowman, Magnolia.
 John T. Rice, Rice Hardware Store, Mineral Point.
 James A. Bell, Roscoe.
 H. P. Smith, Turner & Smith, Ashtabula.
 T. J. Heickel, Union Hardware & Supply Company,
 Ashland.
 G. D. Myers, Union Hardware & Supply Company,
 Ashland.
 Geo. T. Arther, Conneaut.
 H. H. Bishop, McIntosh-Huntington Company, Cleve-
 land.
 M. M. Webster, Baird & Webster, Scio.
 J. B. Drago, the M. I. Wilcox Company, Toledo.
 J. G. Schwertner, Cleveland.
 R. R. Williams, *The Iron Age*, New York.

The Work of the Past Year.

It was evident that the work of the association had been conducted in the most efficient manner during the year and the services of President Wiseman and Secretary-Treasurer Baker, on whom much of the labor devolved, were frequently referred to in a most appreciative manner. These officers positively declined a re-election, deeming it advisable for the good of the association that others actively interested in its work should be in official position and thus give the movement the benefit of their influence. The growth of the association during the year was certainly most remarkable.

Hospitality of Cleveland.

Liberal preparations had been made by the manufacturers and jobbers of Cleveland to extend becoming welcome to the convention and its friends. The Committee of Arrangements was under the efficient direction of C. S. Van Wagoner, who was aided by an able corps of assistants, comprising W. M. Powell, H. F. Lyman, J. Q. Riddle and Munson A. Havens. The Chamber of Commerce Building was secured for the sessions of the association, and afforded ample facilities also for reception and committee rooms. The entertainment given on Wednesday evening was a brilliant affair, and the musical numbers rendered by the Rubenstein Club and the recitations given by Marshall P. Wilder were greatly enjoyed. The banquet on Thursday evening was one of the largest and most successful of trade dinners. The manufacturers who united in extending this hospitality were the following:

American Bicycle Company.
 American Steel & Wire Company.
 Atlas Bolt & Screw Company.
 Bassett, Presley & Train.
 Bingham, The W. Company.
 Bishop & Babcock Company.
 Bourne-Fuller Company.
 Born Steel Range Company.
 Chisholm & Moore Mfg. Company.
 Cleveland Hardware Company.
 Cleveland Stone Company.
 Cleveland Twist Drill Company.
 Cleveland Window Glass Company.
 Eberhard Mfg. Company.
 Ferrosteel Company.
 Forest City Paint & Varnish Company.
 Gibson & Price.
 Johnston & Jennings.
 Kirk-Latty Mfg. Company.
 Lake Erie Iron Company.
 Lamson & Sessions Company.
 Lockwood-Taylor Hardware Company.
 Luetkemeyer, H. W. & Sons.
 McIntosh-Huntington Company.
 Mechanical Rubber Company.
 National Lead Company.
 National Screw & Tack Company.
 Ohio Rubber Company.
 Osborn, J. M. & L. A.
 Patterson-Sargent Company.
 Peck, Stow & Wilcox Company.
 Schneider & Trenkamp Company.
 Sherwin-Williams Company, The
 Standard Sewing Machine Company.
 Standard Tool Company.
 Taylor & Boggis Foundry Company.

Upson Nut Company.
 Upson-Walton Company.
 Van Cleve Glass Company.
 Van Wagoner & Williams Hardware Company.
 Worthington, The Geo., Company.

The Illuminated Padlock.

The accompanying illustration represents a mammoth Padlock about 10 feet in high which was suspended in the rear of the desk of the presiding officer. It was made with a dark background, the outlines being in white electric lights and the lettering in red. It was



Illuminated Padlock.

lighted with excellent effect as President Wiseman called the convention to order. It was designed by E. H. Luetkemeyer, chairman of the Committee on Decorations, whose work in other directions was also very successful.

Relations with Jobbers.

It is a feature of the Ohio Hardware Association that it is not limited to retail merchants, but includes a number of jobbing houses. The relations between these two classes of trade are very cordial, and the courtesies shown by the Cleveland jobbing houses certainly tended to promote this good feeling.

There were, however, several indications during the progress of the convention that the retail merchants are disposed to protect their interests against interference by the wholesale trade, there being some cases referred to in which the retailer's customers were sold by the jobbing houses. Some pointed references were also made to the methods pursued by the National Hardware Association in inducing manufacturers, especially when combinations are formed, to make a wide differential between the jobbing and the retail trade. The retail merchants, while having the pleasantest relations with the jobbing houses, were evidently disposed to see that their own interests are not jeopardized through the efforts of the wholesale merchants. The matter was, however, passed over without protracted discussion and did not come to a vote.

Presentation of Gavel.

At the opening session a gavel in the form of a miniature Axe, full polished, was presented to the president by Mr. Bogardus, who spoke as follows:

Mr. Chairman, I perceive not only in this convention, but in all previous conventions, that the chairman had to use his knuckles to keep order. It seems to me unfair to the knuckles, and in pursuance of that idea I have thought proper to bring a gavel and present it to the chairman of this association, that he might defend our rights and protect the interests of the Hardwaremen

of the State of Ohio, and that he might with this in his hand curb and keep us in line.

Committees.

The following committees were appointed by the chair:

On Finance: H. G. Woodward, O. P. Schreiber and J. C. Conwell.

On Resolutions Regarding Death of Hon. W. V. Marquis: Chas. B. Harner, S. L. P. Stone, O. J. Cosgray, A. D. Hogendobler and A. J. Mangas.

On Question Box: J. G. Reid, W. A. Fearn, H. A. Harger and Mr. Drake.

On Resolutions: W. P. Bogardus, C. E. Smith and W. C. Jones.

On Nominations: T. S. Morris, F. W. Ingalls, Charles Boebinger, J. P. Duffy and J. C. Conwell.

On Lien Laws: W. P. Bogardus, W. A. Fearn and C. B. Burr.

Constitution and By-Laws.

The Committee on Constitution and By-Laws, consisting of A. J. Ross, F. W. Ingalls and Geo. F. Eberle, reported revised constitution and by-laws, and their report, with a few minor changes, was adopted as follows:

CONSTITUTION.

NAME AND OBJECT.

ARTICLE I.

Section 1. The name of this organization shall be the Ohio Hardware Association.

Sec. 2. The object of this association shall be for the mutual benefit of the retail Hardware dealers of Ohio, by promoting their interests and securing their friendly co-operation.

QUALIFICATION FOR MEMBERSHIP.

ARTICLE II.

Section 1. Any person, firm or corporation engaged in the Hardware business and so recognized may become a member of this association by subscribing to the constitution and paying membership fee and the annual dues prescribed by the by-laws.

Sec. 2. All Hardware traveling men traveling in Ohio are eligible as honorary members of the association on payment of \$3 dues annually.

OFFICERS.

ARTICLE III.

Section 1. The officers of this association shall consist of a president, vice-president, corresponding secretary, financial secretary and treasurer, and eight members of the association, no two of which shall be chosen from the same Congressional district. These eight members, together with the president, vice-president, corresponding secretary, financial secretary and treasurer, shall constitute the Executive Committee.

ELECTION AND DUTIES OF OFFICERS.

ARTICLE IV.

Section 1. All officers shall be elected by ballot.

Sec. 2. The president, vice-president, corresponding secretary, financial secretary and treasurer shall be elected annually.

Sec. 3. The Executive Committee shall be elected as follows: Four for one year and four for two years, to be elected at annual meeting in 1900, and four to be elected annually thereafter to hold office for two years.

TERM OF OFFICE.

Sec. 4. All officers to hold office until their successors are elected or appointed.

APPOINTMENT.

Sec. 5. In case of vacancy of any of the offices of the association the same shall be filled until the next annual meeting by appointment by the president, to be approved by the Executive Committee.

PRESIDENT.

Sec. 6. It shall be the duty of the president, or in case of his absence of the vice-president, to preside over all meetings of the association, to exercise supervisory control over the affairs of the association and to enforce all measures adopted to improve the retail Hardware business of Ohio, and to preside at all meetings of the Executive Committee.

CORRESPONDING SECRETARY.

Sec. 7. The corresponding secretary shall keep a record of all the meetings of the association and of the

Executive Committee, and perform such other duties as may be required of him. And he shall be under the direction of the Executive Committee.

FINANCIAL SECRETARY.

Sec. 8. The financial secretary shall receive all dues and moneys. He shall pay the same to the treasurer of the association and take his receipt therefor. He shall issue all orders on the treasurer authorized by the association or Executive Committee. He shall issue certificates of membership for dues and furnish with each certificate of membership a suitable badge or ticket, that each member can be recognized by the sergeant-at-arms. He shall be required to give bond to the association as required by the Executive Committee. The fee of the bond company shall be paid by the association.

TREASURER.

Sec. 9. The treasurer shall receive from the financial secretary all funds collected by the association and disburse the same under the direction of the association or Executive Committee through a voucher signed by the president and financial secretary. He shall be required to give bond to the association, as required by the Executive Committee. The fee of the bond company shall be paid by the association.

THE EXECUTIVE COMMITTEE.

Sec. 10. The Executive Committee shall fix the salary of the corresponding secretary. They shall perform the duties of an Auditing Committee and examine the books of the financial secretary and treasurer and report their condition at the annual meetings of the association. They shall have general supervision of the affairs of the association. They shall appoint two members of the association to act with the corresponding secretary as the Grievance Committee. The president of the association shall be *ex-officio* of this committee.

GRIEVANCE COMMITTEE.

ARTICLE V.

Section 1. It shall be the duty of the Grievance Committee to receive from the corresponding secretary all complaints, recommendations and suggestions from the members of the association, and investigate and adjust such matters as they deem to the best interest of the association, and make such report to the association as the matters brought them may require.

SERGEANT-AT-ARMS

ARTICLE VI.

Section 1. The president shall appoint at each meeting of the association a sergeant and an assistant sergeant-at-arms, whose duties shall be to see that no one but members of the association be admitted to the meetings of the association, except by order of the presiding officer.

AMENDMENTS.

ARTICLE VII.

Section 1. Amendments to the constitution and by-laws may be made at any regular meeting of the association by a two-thirds vote of the members present. Thirty days' written notice of any contemplated change shall be furnished each person, firm or corporation of the association.

BY-LAWS.

ARTICLE I.

Section 1. The president, together with the Executive Committee, may call special meetings when they deem necessary. Thirty days' notice of such meetings shall be given the members of the association.

Sec. 2. The Executive Committee shall be subject to call by the president of the association.

Sec. 3. The admission fee to membership shall be \$3, payable in advance, which fee shall cover all dues for the first year.

Each person, firm or corporation shall pay for the current expense thereafter \$3 annually, which shall be the dues, payable at regular meetings of the association.

Sec. 4. Any person, firm or corporation failing to pay all dues within 30 days from the annual meeting, at which time they become due, shall forfeit all membership and rights in this association without further notice.

Sec. 5. The expense of the Executive Committee and Grievance Committee at special meetings shall be paid by the association.

Sec. 6. No grievances shall be brought before the association except through the Grievance Committee.

Sec. 7. No malt or intoxicating liquors of any kind shall be served at any banquets given by the association.

Sec. 8. Each person, firm or corporation shall have but one vote at any meeting of the association.

Sec. 9. No honorary member shall be allowed to vote at any meeting of the association, nor hold any office.

Sec. 10. The regular meetings of the association shall be held annually, for three days, commencing on the last Tuesday of February of each year, at such place as may be designated by the association at the previous annual meeting, which place shall be determined by a majority vote of all members present; vote to be taken by ballot.

Sec. 11. The first day's sessions of the association meetings shall be open sessions. All sessions thereafter shall be executive.

QUORUM.

Sec. 12. A majority of the members of the association in attendance shall constitute a quorum for the transaction of business.

THURSDAY'S SESSIONS.

There was a large gathering of members at the session on Thursday morning, when W. P. Bogardus made the following address of welcome to new members, his subject as given on the programme being "Words of Welcome to New Members by an Old Member." His address was as follows:

Mr. Bogardus' Address of Welcome.

It is my pleasant duty, on this occasion, to extend to the new members of the Ohio Hardware Association the right hand of fellowship. Assured as I am that this action on your part was taken after due deliberation, I, on behalf of the old members bid you thrice welcome. And as I welcome you it may not be amiss to call attention to some of the objects of the association. In answer to a call perhaps a dozen Hardwaremen met in a small room in the Nell House, Columbus, October 10, 1894, and formed an association whose object was to "promote the interests and secure the friendly co-operation of Hardware dealers" throughout the State.

AT FIRST

the membership was limited to the retail dealers, but experience has taught us that the co-operation of the jobbers within the limits of the State was of advantage to us. So now the lines of the association have been enlarged and all are welcome. With this enlargement of our lines has come expansion of aims, and to protection and friendly co-operation we add information and better acquaintance. Some may say to you "In what do you need protection?" We answer that there have been times in the experience of all of us when we have had to compete with the manufacturers and jobbers, of whom we were buying goods. The protest of a single merchant had little effect in putting a stop to such a practice. But the protest of this association, backed as it is by Hardwaremen all over the State, is heeded. And any reasonable request made by us is promptly granted.

MONOPOLIES.

There is a tendency on the part of those who own or control large amounts of capital to become arbitrary and intolerant in their ways of doing business; to ignore the rights of and to ride rough shod over the weak. A combination that seeks to monopolize the output of any article of necessity is a menace to public welfare. Monopolies should never be for private interest; therefore government should own all monopolies. One of the great dangers that confronts us as a people is the combination of large amounts of capital, whose aim is to control the production of articles of necessity, and to restrict the amount of the output in order to advance the price. Value should be based on the cost of production and not on the amount of water there is in a given stock on which it is desired to declare dividends in order to entrap the unwary. Such combinations seem to have respect only for those who meet them on their own ground. As individual merchants they do not listen to us. As an association they may, in time, learn to give us respectful hearing.

ANOTHER OBJECT

of this association is to get information. "As Iron sharpeneth Iron, so the countenance of a man that of his friend." So in our annual meetings the questions come

fast on each other. What is the best way to advertise; the best way to collect accounts; the best way to keep stock; to arrange store; to keep catalogues and prices, and a multitude of other every-day practical questions, the answers to which are of interest to all of us. Then the discussion of papers and the interchange of views that broaden us, so that we look on our business from a new point of view. Our work ceases to be a trade and becomes a business. It is no longer drudgery, but a pleasure; and we go to our work with gladness and leave it with regret.

BETTER ACQUAINTANCE.

Still another object of our association is for better acquaintance. As our acquaintance with each other in these annual conventions ripens into friendship, and we find what nice men Hardwaremen are—and that is no jolly—the thought comes to us that perhaps the Hardwaremen in our own town are better than we have supposed, and we go to investigating. The result is, in a large number of cases, that we learn to like and respect our competitors; and are inclined to consult with them for our mutual protection. That two men in the same line of business in the same town are of necessity enemies is a vicious and false proposition. They should be friends. The interest of one is the interest of the other. For if one makes a cut in prices the other follows suit, and there is no profit to either. One man cannot sell all the goods. So it is better to have an understanding and get a reasonable profit.

And now with this brief *résumé* of some of the objects of the Ohio Hardwaremen's Association, I again bid you welcome, with the hope that our annual meetings will strengthen our position and advance the interests of the Hardware trade of the State of Ohio, so that we

"Shall brothers be knit in closer bands,
From the mountain crest to the gray sea sands;
And the world be better, I ween."

The Relation of Expenses to Profits.

The following paper on the above subject was then presented by John Plummer:

I certainly appreciate the high honor conferred upon me by our worthy president and secretary in asking me to take a part in this meeting.

As stated on the programme, my subject is "The Relation of Expenses to Profits," and possibly no other subject is of such vital importance to us as the consideration of our expenses and profits.

METHODS CHANGING.

We are compelled to give attention to this subject, because, like other branches of business, the Hardware business is changing, and the methods of years ago will not apply to-day, or if applied the result will inevitably be a change of hands in the ownership of the store.

Not long ago a man with average ability and a little money could open a Hardware store in almost any village or city in our State, and he was sure of a good living. His expenses were not heavy and his customers were not cranky. It was not necessary for him to have his store as well finished as the store of the dry goods merchant. It did not need to be so orderly as the grocery, because most of his customers were men—farmers we may say—who came to buy and not to criticise; men who knew what they wanted, came and got it, paid their money and left. As to the Hardwareman himself, his appearance was not much of a consideration, his dress did not worry him.

A NEW ERA.

But times have changed; customers have changed with the times, and they demand something different. They asked for better stores and better stores came. They asked for a greater variety of goods and a greater variety appeared on our shelves; they asked for more attention when making their purchases and more clerks were seen behind the counters; they demanded of the proprietor more attention to his personal appearance and more new clothes were needed. Clean linen takes the place of the once common hickory. And, my friends, what did all this mean? It meant that a progressive civilization caused a wonderful increase in our expenses, and in addition to the time and money at first required the merchant was compelled to throw in more brain work to keep pace with the growing demand.

There are expense items now that years ago were not dreamed of and some of them I shall mention later.

IMPORTANCE OF ACCURATE ACCOUNTS.

No man can expect to succeed in business without keeping a careful record of the business he does, expenses and profits, and when he does that he is able to see where he can retrench and where he ought to expand; where he is losing and in what particular line he is making a profit.

Hardware is no longer a guess, it has been reduced to a scientific basis, and the man who starts in the business with a clear conception of that has plenty of room for success.

ANALYZING THE EXPENSE ACCOUNT.

Let us now look at some of the items of expense, and I may say this calculation has been taken from the books of some of our best business men and averaged, so that I have no hesitancy in saying that I think it comes very nearly representing the true expenses of an average Hardware store. Three per cent. is added and becomes a part of the cost of the goods. Gross profits on sales, 20 per cent. On the gross profits we must count our expenses. We find that of this 20 per cent. profits it is spent much as follows:

	Per cent.
Help	21
Rent	9
Fuel	$\frac{1}{2}$
Light	$1\frac{1}{2}$
Stationery, &c.....	$\frac{1}{2}$
Stamps, telephone and telegraphs.....	3
Tax and revenue.....	$2\frac{1}{2}$
Advertising	$3\frac{1}{2}$
Insurance	$\frac{3}{4}$
Incidentals	$5\frac{1}{4}$
Total	48

Here we see that almost half of our 20 per cent. gross profits has been paid before we come in for any share ourselves, and the remaining 52 per cent. of 20 per cent. of our sales may be classed as our salaries, interest and doubtful accounts. Is it possible to cut down this expense list? Over this question I have worried considerably, and I am afraid I must answer in the negative.

And if we are compelled to judge of the future by the past, instead of the expenses being cut down, we must face the inevitable and acknowledge there is more chance for an increase.

EXPAND THE BUSINESS.

How, then, shall we meet this emergency? One answer I will give this question—namely, widen our trade, that is, make more branches.

A study of this answer will show that it is practical. It is so in other lines of business. The grocer does no longer confine himself strictly to groceries; the dry goods man has more than mere dry goods on his counter, and shall not the Hardwareman profit by their example? Add to your stock different lines, as may suit the community. I find that I can handle Stoves, Farming Implements and Saddlery to good advantage, the expenses being but very little more, while it gives me a greater base to work upon, a greater investment, a larger amount upon which to count my percentage of clear gain, hence larger real profits.

In this way we have an opportunity to increase our sales, to make use of our increased facilities without much additional expense. Hence, whatever profits we have are more clear gain than formerly. Under this method of work we can thus figure to a nicety almost all our expenses and profits.

A SUPPOSITITIOUS CASE.

For instance, let us suppose a man with an investment of \$5000, in stock carefully chosen, should have sales amounting to \$20,000 per year. His gross profits would be \$4000, his net profits \$2000. Allowing the proprietor \$100 per month salary there is still left \$800, which will stand for his dividends or interest on his money invested. This assumes that the proprietor is a business man; a man who puts not only his physical power into the work, but brains also. A man who gives it his thought and plans just what he must handle to suit his trade; who is careful that no dead stock is allowed to accumulate on his shelves or bad debts on his books.

THE DEDUCTION.

Now, my hearers, let us moralize a little, and then I am done. Why are we in the Hardware business? We are in business for the almighty dollar; we are in it to succeed and not to fail, and yet some of us do fail, and for the simple reason that we do not give sufficient attention to the relation of expenses to profits.

Gentlemen, keep your hand on that place, which I take the liberty of calling the pulse of the business.

Notice its record, and should your expenses exceed 50 per cent. of your gross profits, something is wrong which must be righted. Let every item be watched; be systematic; be not tempted to launch into wild speculation with the expectation of future great profit; such men may succeed, but where one is successful nine will fail. Study your business; get to understand it; stick to it and it will stick to you.

Discussion on Mr. Plummer's Paper.

The President: I should like to have some discussion on this paper of Mr. Plummer's. We are all interested in the relation of expenses to profits, and would like to hear from the members.

Mr. Fearn: There are a great many men get "left" by not figuring the profits or relationship of their profits to their expenses. They take the profits as he has stated it. They make 20 per cent., for instance, and have a gross profit of \$4000. They do not stop to consider that those goods cost them \$16,000, and when they come to mark the selling price, instead of adding 25 per cent. they add 20 per cent. You do not calculate your profits at the end of the year after you have figured up the amount of your business on what you have paid for the goods, or the percentage you paid for them, but on the percentage you sold them at. I want to call the attention of those who do not figure that. If they figure it on the basis of 25 per cent. instead of 20 per cent. it will be more correct. Another thing—as expenses increase we should figure on increasing our profits. I think the disposition of the Hardwaremen, especially in Ohio, is to sell goods for less money all the time instead of selling goods for more. Anybody can sell goods for a low price; it doesn't require a salesman or a bright man to do that. But it requires a bright man to sell Hardware and make a profit. I want you all to try and get better profits.

Mr. Bogardus: We are getting in the habit of raising up the prices instead of dropping them down, and I think it is an excellent good habit to get into, and I believe that with this boom we are having in business we will get into the habit of raising the prices instead of lowering them.

The Secretary: Mr. President, for the benefit of those who are here, I would like to read something I cut out of *The Iron Age* about a year ago. To me it is a very valuable slip. This is an article which was written by some man who sent it to *The Iron Age*, headed, "Some Figures Showing the Results of Doing Business."

The following table gives interesting statistics:

Table Showing Results for 15 years' Business.

Years.	Percentage gross profits to sales.	Percentage net profits to sales.	Percentage net profits to capital.	Percentage losses to sales.	Percentage expenses to sales.	Percentage open accounts to sales.	Times stock turned during year.
1st.....	.178	.073	.23	.013	.069	.30	3
2nd.....	.212	.097	.27	.015	.081	.30	$2\frac{1}{2}$
3rd.....	.188	.082	.19	.026	.079	.27	$2\frac{3}{4}$
4th.....	.217	.11	.20	.028	.088	.33	3
5th.....	.191	.109	.13	.03	.094	.36	$2\frac{3}{4}$
6th.....	.215	.106	.20	.029	.082	.36	3
7th.....	.224	.126	.17	.026	.093	.46	$3\frac{1}{2}$
8th.....	.198	.101	.17	.02	.091	.41	4
9th.....	.218	.069	.21	.011	.085	.44	$4\frac{1}{2}$
10th.....	.210	.077	.15	.017	.097	.43	4
11th.....	.20	.081	.08	.023	.128	.44	$2\frac{1}{2}$
12th.....	.21	.065	.10	.014	.126	.40	$4\frac{1}{2}$
13th.....	.206	.051	.14	.018	.118	.37	5
14th.....	.194	.06	.10	.018	.113	.37	$4\frac{1}{2}$
15th.....	.193	.05	.08	.014	.123	.32	$3\frac{7}{10}$
Average for 15 years..	.20	.083	.16	.02	.097	.37	$3\frac{5}{10}$

The President: I would like to say for one, the expense of my business last year was $18\frac{1}{4}$ per cent.

Mr. Fearn: When it comes to the percentage that it costs to do business, I would venture the assertion, if you are doing it carefully and doing a progressive business, that you cannot do business on an average profit of 20 per cent. and save 10 per cent or half of the gross profit for yourself, less losses, &c. You must get more than 25 per cent. of the cost of the goods to succeed.

Mr. Plummer: Partners usually draw out during the season, and at the end of the year they balance up. If one has drawn out more than the other he is entitled to less of a dividend. But I think the business can be done on less than 18 per cent.

Mr. Fearn: If I am working for myself, why couldn't I get a salary from the business? No one would employ me for nothing. Why shouldn't the business pay me a salary? How can I figure that I have made a profit if I do not pay myself interest on my investment and pay myself salary? If you figure on a basis of no salary for yourself and count yourself worth nothing, on what basis can you figure to estimate what profits you are going to get? I say you must calculate that you are worth something; that your money is worth something; because you can always invest it and get something out of it. I say the principle is wrong for a man to do business on the basis of his work not being worth something.

Mr. Duffy: I understand the gentleman has gathered his information from a number of persons in his locality. He leaves out of his calculation the salary problem, because a number of them do not include it in the expense account. This must be borne in mind in considering Mr. Plummer's figures. It leaves 52 per cent. for the merchant's salary, his loss for bad accounts, and his interest on his investment. If there is anybody doing business and his expenses are more than 47 per cent. of the gross profits, and the salary to be added to that, his expenses are large enough.

Mr. Fearn: The only trouble is that the gross profits are not large enough. The gross profits are 20 per cent. To take 20 per cent. from the \$20,000 leaves him a gross profit of \$4000. Of that there was 52 per cent. recompense for labor, and the use of his money and for losses and for dead stock. My claim is that 20 per cent. is not enough.

Mr. Getts: I would like to speak a word in this connection. I think that Mr. Plummer is all right. Our store did a business of \$25,000. I have recently finished the books, and I find our expenses, as Mr. Plummer's are, are just 5 per cent, \$1250. We have no right as Hardwaremen to figure ourselves a salary. I might think I am worth \$3000 salary; another man may think he is only worth \$500. If he figures himself worth \$500 and I figure myself worth \$3000, how are we going to get along on that basis? The proper way is to mark your goods and sell them, and be sure of your 5 per cent. expenses anyway, and trust to luck.

Mr. Bogardus: If statistics of this kind are going to have any value, we have to have some definite understanding of what we consider expense. There is the interest on money, the salary, and other things are always there. Why should not a man be paid for his time and why should not it be considered an item of expense and a fixed charge? Then the rent and interest on the money are fixed charges. Now, taking those as matters of expense, we can arrive at some definite conclusion. As it is now, say the average expense is 48 per cent., what is the outcome? The gentleman says that he is on the broad road to ruin and would be out of business in a short time. Now let us arrive at some definite ideas as to what are the proper things to consider as expenses in connection with running stores and then they will be of value to us.

Mr. Kinney: The gentleman here has made the statement that he has done business for the last year at 5 per cent. I would like to ask him who owns the building in which his store is located? Who pays taxes on that store, and what percentage he has to pay? Who pays the insurance and what percentage he has to pay, and who pays any of his clerks and the amount of the clerk hire, and so on, and see if we cannot get an estimate of over 5 per cent. of the amount of goods sold. Now that is an unparalleled sale at 5 per cent., and I think this audience would like to know just how that gentleman succeeds at 5 per cent.

Mr. Getts: To give our friend from Wooster a few things in way of information in regard to doing business on 5 per cent., I would say: In that 5 per cent. are included the following: While we have an interest in the building that we are doing business in, the store pays a rent of \$40 per month. That is added in, reckoned as expense. The taxes are in that, the taxes on the stock being about \$80 a year. Now the freight and dray charges; we run no dray of our own, so we hire a dray. All incidental expenses, such as telephone, special messenger, &c., are added in this account. Insurance is added in that account. The insurance runs about \$75 per year. The salaries are not included because we expect to divide that balance between us at the end of the year. We carry a stock of between \$6000 and \$7000 and we reckon that at 6 per cent. We pay no salaries to any one except to ourselves. We have no clerks and do all the work ourselves. Of course, the time will come when we cannot do all this work ourselves and will have to hire it. Our freight and dray charges are about \$250 a year. We count that into expense. We do a cash business largely. My figures are all right for our store, and if you ever come down there I will show you a nice one. Our place is located at Kent, Ohio, 25 miles from here.

Mr. Cussins: In listening to the remarks of one or

two members it might apply to their store business. But the store I am interested in you could not apply it. While there are two of us, there is only one there. What are you going to do with the other man? If you divide what each uses, I am afraid he would get the best of me, for my partner has a family to keep and I have none. I draw a salary just the same as though I was working for any one else, and our money that we have invested we pay ourselves and interest on it at 6 per cent. There is no reason why I should invest my money and take all the chances and not get anything above my usual 6 per cent., because I can get that any time, and I do not believe you can figure a business and make money out of it unless you can figure it on that basis.

After the discussion of Mr. Plummer's paper the subject of

Stock Taking and Dead Stock

was discussed by John Spoerl, as follows:

The subject selected by your committee for my remarks is in part distasteful to me. There is no part of my duties that I dislike more than stock taking, and I do not even want to talk about it. That portion of the subject will therefore be passed by in silence for the consideration of those more capable than myself.

Dead stock to my mind is considerable of a ghost, as the more one tries to find it the more it eludes your search, or rather the more you look for it the less real it becomes. The very fact of directing your mind toward dead stock brings it to life, and proves that it was only sleeping from neglect. When your attention is directed to certain goods more than to others they will naturally be the first that you will talk your customer into buying. Simply thinking of them makes them go at every opportunity that comes along.

ETERNAL VIGILANCE

in obtaining a thorough knowledge of the wants of your trade is the price of success. Make it your incessant study to learn all the particulars possible about each of your customers, and keep in touch with their wants and tastes instead of your own. Classify your trade into grades, and select a representative of each grade and make selections in buying as though you were buying for them instead of yourself. Remember also in selecting stock that you are in fact the agent of your trade, while the salesman's interest is with his employer instead of being with you.

MAKE YOUR OWN SELECTIONS,

instead of letting him do it for you. Articles that he might recommend as being salable elsewhere may be entirely unsalable in your locality. Should any new article of merit be offered to you that would displace similar articles in stock, buy very sparingly of it until you have disposed of the older stock before it is killed by the new. It may be true that your competitor may be offering the new articles before you do, but your customers are not supposed to know what your competitor is selling, they should depend upon you to supply their every want in your line and go nowhere else.

TO CONTROL YOUR TRADE

and hold it in this manner is a secret that is disclosed in one word, honesty. The old man with a life time's experience will say that "Honesty is the best policy." The "smart" young man will say "Get money honestly if you can, but get money," the inevitable result of which is failure. Never betray the trust placed in you by a customer, study each transaction separately, and make it bring a return of many others. A small profit on many sales to the same party will amount to more than a large profit on a single transaction that may cause him to never return.

A GOOD THING IN LOCKS.

You no doubt remember the time when the sale of Locks No. 11, 13 and 22 was discontinued by the manufacturer. I fortunately had quite a stock of them on hand at the time, which many would have classed as dead stock. I placed an order for 25 dozen more of them at once, and when the stock of competitors was exhausted

I doubled my price, and monopolized the demand that continued for repairs at an increased profit over more up to date articles.

MAKING WIRE NETTING SELL.

At one time I purchased a quantity of Wire Netting, a substitute for lath. It would not sell. Nobody wanted it. Dead stock from the start, it "died a bornin'." I brought it to the front, recommended it for Stable and Cellar Window Screens, cut it in small quantities to suit purchasers, and disposed of it all at a price far in advance of the price it would bring for the purpose it was intended.

A LARGE PROFIT ON MIXED TILING.

I once purchased 75 barrels of mixed Tiling from the dead stock of a dealer at \$1 per barrel. I found it to be a recreation to arrange the old stuff into new designs and patterns that were suited to the tastes of my customers. While the stock was old the designs were new, and put life into it to the extent of a profit of over \$500.

A certain customer comes to me at regular intervals and trades Knives simply to get rid of his old Knife, which has become dead stock to him, while the old Knife he gets from me is new to him.

The moment dead stock passes into new hands it becomes new stock to the purchaser. There is no dead stock until it ceases to move, then kick it along and keep it moving, and it won't have time to die.

PUT YOUR WHOLE SOUL INTO YOUR BUSINESS,

mingling with your customers, load a keg of Nails in their wagon and learn all you can about their wants, and by suggestions that are always appreciated, fit their wants to your stock. Do not get above your clerks; keep yourself down to their level; or still better, help them up to your own. Set good examples for them to follow; teach them the art of keeping stock alive by keeping it moving. Show them the advantage of holding trade by honesty in each transaction, and grade their merit by continued sales to the same customer instead of by the profit of a single sale that drives him to your competitor.

ONE BRAND OF RAZORS.

Lest you might infer that I am an old fogey, I want to digress from the subject of dead stock, and say a word about live stock. At one time I carried more than a dozen standard brands of Razors, I was unable to recommend any one brand over the others, they were all equally good. I found that customers were frequently unable to make a selection. They expected me to assist them.

I discontinued the sale of all the brands except one, which I now purchase in quantity, and have my own name put on them by the makers. The customers never get rattled now. In making the selection of a Razor they have but one brand to select from, and in the absence of the others it is always the best. My sale of Razors has increased tenfold. Every purchaser recommends them to others. If you can get your name on a good article it will keep it alive, and never annoy you by becoming dead stock.

THE QUESTION BOX.

The next order of business was the opening of the Question Box and discussion of the questions. This proved to be a most interesting feature of the convention, and the queries and answers touched upon many subjects of practical importance. Mr. Reed, the chairman of the Committee on Question Box, read the following questions:

1. *Will not a national association of retail dealers, acting in conjunction with the National Jobbers' Association, solve the department store and catalogue house question?*

Mr. Fearn: It seems to me that it is necessary to have a national retail dealers' association, and for several reasons: Among them may be this, that it would enable us, on account of the large amount of money

that we would have free for the purpose, to employ an able man, who would devote all of his time to the interests of the retail Hardware dealers. Acting in conjunction with the secretary of the National Hardware Association, it occurs to my mind that they would be able to go to the manufacturers, not with a threat or with a demand, but in a conciliatory, businesslike manner place before the manufacturers who sell department stores and catalogue houses the error of their ways. I think that a solid front such as those two men would be able to present, representing all of the organized retail dealers and all of the organized wholesale dealers, that it would be a manufacturer who would be deaf to his own interests who would fail to listen to their entreaties and persist in an attempt to market his product to a department store or catalogue house. If we remove that competition, eliminate it, I am sure that we would all be able to do what Mr. Plummer's paper advised us to do—to make a better profit. I have no doubt that there are some of us here who are not afflicted with the department stores or with the catalogue houses. Personally I am not, but I know a good many of my brothers in the trade are, and I believe it is my duty as a Hardwareman to do all that I can, and I believe it is our duty jointly to do all that we can, to eliminate that competition.

Mr. Hart: I think for one that the catalogue houses will be with us 100 years from now. It is not a question of whether we shall have catalogue houses, but the question is in the association of not only the Ohio Hardware men but of all other States, whether a national association will serve to draw the line sharply as between the jobbers and the manufacturers of standard goods and those of the catalogue houses. I do not think there is any chance at all of eliminating the catalogue houses, but only to draw the lines, so that, as manufacturers of standard goods, they will not carry water on both shoulders, expecting to get the trade of the Hardware dealers and the trade of the consumers.

Mr. Kauke: I suppose one of the great causes of the department stores that have sprung up is the second-class goods. Now, these goods are sold to the department stores, and a Hammer which ordinarily brings 25 cents is sold by these stores for 10 cents. I think that accounts for the large amount of supplies these department stores get.

2. *Why should the retailer permit the jobber to dictate the price at which the retailer may buy goods of the manufacturer?*

Mr. Burr: I believe that one of the advantages of a national organization, with a man to look after the interests of the retailers, such as the jobbers have, would correct the matter. It is pretty well understood that the jobber has asked the manufacturer for a profit over the retailer of 25 per cent. I do not believe there is a man in the room but feels that is too much, and I believe that with a national organization and a man employed to look after their interests that the question can take care of that.

Mr. Fearn: If I am correctly informed the National Hardware Jobbers' Association have an able man in the field by the name of T. J. Fernley, who attends the meeting when they establish the prices, both jobbers' and retailers' prices; and he has been successful in having a preferential rate established of 15 cents a keg on Nails. You pay 15 cents a keg more than the jobber does; on Steel Goods 10 to 15 per cent.; on Shovels—you all know something about that, and I might name other items. I think our friends, the jobbers, many of whom are members of this organization also, do not hardly recognize the position that they occupy, the dual position of coming to us with one hand and asking us to favor them with our orders, and coming to us with the other hand with a stone in it ready to crush out our profits. In other words, I think the jobber hardly realizes the fact that he is trying to close the market for us. I do not think he has the right to ask another man to set a price at which we shall buy. Is it fair or just? What right has the jobber to say you shall not buy from manufacturers except under certain conditions? That is one of the evils that I hope might be corrected through a national organization of retail dealers. I think if we have a man in the field to meet these men their demands would not be acceded to with such alacrity. I think it should be the sense of this convention assembled here to pass a resolution requesting the jobbers to desist, to keep their fingers in their own pudding and leave ours for ourselves.

3. *Will it pay a Hardware dealer to give trading stamps to each buyer?*

A Member: I will say no.

The President: It is my personal experience that that sort of thing in the Hardware trade does not go

No value can be attached to it whatever, and I think that is almost the universal opinion of the Hardware trade throughout the United States and everywhere else.

4. *Some members of our Ohio Hardware Association, both wholesale and retail goods, are sending their representatives out to canvass the blacksmiths, grocers, &c., who are not legitimate dealers; a great many grocers make Hardware goods a medium of advertising by selling at no profit; what shall be done in reporting such matters?*

A Member: Refer the matter to the Grievance Committee.

The President: I would say there has never been a time and never will be in which those things are reported when they will not have the promptest attention. You gentlemen do not realize that our secretary, Mr. Baker, during the last year has written about 800 letters. I simply want to say to you that if you have a grievance and do not present it it is your own fault and not the fault of anybody else, and the sooner you report any grievances the quicker you will get rid of them.

5. *What can be done where a jobber gives a building contractor a lower price on a set of House Trimmings than he would a regular dealer (which was done here in Cleveland not over 30 days ago) and at the same time tells the contractor when he wanted any goods in that line not to go to his dealer but come to him direct and he would do it every time?*

The same was referred to the Grievance Committee.

6. *What is the best way to keep track of catalogues and price-lists?*

A Member: I refer to Mr. Baker; he is authority on that subject.

Mr. Baker: I am like the man, gentlemen, that went out to hunt the bear; I am loaded for bear. A few years ago I got up a plan for keeping catalogues and price-lists, which was illustrated in *The Iron Age*, and I received letters from people all the way from Portland, Ore., and Los Angeles clear through to Florida on the south and some place up in Maine with a most unpronounceable name. Now I am sorry that I have not with me a cut such as was shown in *The Iron Age* at that time. The cabinet is about 5 feet high and about 30 inches wide. It is in two sections; it has 16 drawers or pockets in it. You have seen them in some of the law offices. These are numbered from 1 to 16. The pockets, I should judge, were about 10 inches wide to about 14 inches deep. These are numbered from 1 to 16 inclusive. The catalogues are placed in the pocket with some reference to the goods they describe.

In view of the practical interest of the subject and the recognized excellence of Mr. Baker's method it was suggested that perhaps *The Iron Age* would favor the trade by reproducing the description of this cabinet, and R. R. Williams, the Hardware editor, stated that this would be done and invited from other merchants information in regard to any other plans which have been found successful for keeping catalogues and price-lists for convenient reference. The discussion of the general subject was then continued.

Mr. Bogardus: I have a system of drawers with 26 numbers or parts, and also a double index. I can refer to Anvils or Axes in the index, and then I can go to that drawer. I can assume the same policy with all the different letters of the alphabet, Fire Alarms or anything of that kind. There are some drawers larger than others. Then my catalogues of size go into a cabinet perhaps 3 feet wide and 4 feet high—I think there are three shelves in it—and those catalogues are put in there. All I have got to do is to turn around, open the door and reach for a catalogue. Any man can get the information and it don't take long to find it. He gets the impression that I know a great deal more about the Hardware business than I really do. Now, it does not make much difference how much I know, the question is how much he thinks I know. Nine times out of ten I supply the information.

7. *Does it pay to be known as a low priced firm?*

A Member: I say no.

8. *Had a retail hardware dealer better purchase his hardware from one or two jobbers, or six or eight, or more?*

A Member: I think that question will answer itself. The customer ought to be the best judge himself.

9. *Which is best, to mark goods in plain figures or in characters?*

Mr. Bogardus: My own experience is that it is better to mark prices in figures than in letters. But a certain

class of trade who contract do not want their customer to know what the goods cost them, because sometimes they may make a contract to put in goods of a certain value and do not do it; for that reason they object. I see no other objection to marking in plain figures. The clerks can recognize it and the customers feel they are being treated squarely.

The President: I believe, gentlemen, the goods in your window, on your shelves and in your showcases marked in plain figures will make silent salesmen that will sell of themselves one-fourth of your stock of goods. Those who have had experience with goods marked in plain figures will admit I am right in the matter.

Mr. Powers: We use both systems. For instance, we sell Stoves and sell Hardware. We have our Stoves marked in plain figures. Sometimes when ladies come in to look at Stoves they like to see the goods marked in plain figures. In some instances I know we have made sales with very little talk.

A Member: I marked my goods in plain figures 15 years ago when I started up, and I see no reason why I should change now.

Mr. Plummer: I have marked my goods in plain figures for several years. The trouble Mr. Bogardus mentions I find is an advantage to me.

10. *What is the best system to make it impossible for goods sold on credit to be delivered without being properly charged?*

A Member: Why, charge them.

Mr. Meinrding: I find that all charges, or 90 per cent. of those that our firm make, are made on busy days, where salesmen try to wait on a few customers before the charges are made. We always direct them to make the charges before waiting on the next customer.

Mr. Burger: We have adopted a system of requiring the purchaser, before any goods are taken out of the house, of signing his name to an order. Each one of the clerks has instructions to give no goods unless a responsible name is on the order.

A Member: We have a system of making a record of cash sales as well as charges. We have two methods of making those records. The charge sale is made of record one way and the cash another. I believe that is the usual custom, to make the cash sale on a slip and the charge on a book. We have adopted a method of slips that enables us to put the charges and the cash sales on the same slip, and we find that it comes second nature for the clerk to make a memorandum of everything he does, and he has got but the one way to do it, no difference whether it is a charge or cash. The first thing he does before waiting on another customer is to make a record of the sale; that enables us at the same time, without any writing or figuring, to figure our daily profits, which we do in every instance, both of charges and cash. We find that by that system we can do a great many very necessary things with no more writing and no more trouble than the most careless method that you can keep any record by.

11. *Is there any one here doing a strictly cash business?*

W. P. Scott: Our firm has been doing a strictly cash business for one year. The only exceptions we make are our public institutions, such as County Commissioners and Children's Home, for instance. Those are the only exceptions we make; all the rest pay cash. It is a very old store, has been doing business for fifty years. We established the cash system one year ago, and have been adhering to it very rigidly and have no notion of giving it up. We can sell goods cheaper as a result, have promised our customers we could sell them cheaper and we are doing it.

A Member: Do you sell Stoves?

Mr. Scott: We sell Stoves.

Mr. Baker: Have you lost any customers?

Mr. Scott: Well, we don't know how many customers we have lost, but we have gained very much during this last year. The sales of every month exceed those of last year.

A Member: How much has your business declined since you adopted that system?

Mr. Scott: It has increased every month.

A Member: Do you do a jobbing business?

Mr. Scott: Oh, do a little jobbing.

A Member: How many other firms are in the same business in your town?

Mr. Scott: One.

A Member: Do they carry on a cash business?

Mr. Scott: Well, I don't know.

A Member: If some party comes in and wants to buy a \$35 Range and only has \$25 cash, do you make the sale or not?

Mr. Scott: Well, he either buys a \$25 Range or he goes somewhere else and gets it.

A Member: I would ask if you take a note for the difference?

Mr. Scott: We do not take any notes.

12. *Is the exclusive retail Hardware dealer's usefulness at an end?*

A Member: Some of them are.

13. *Are we justified by the future prospects of the Hardware business in teaching our sons the business?*

A Member: I notice the sons usually follow in the footsteps of their fathers.

14. *Is it safe and good judgment to warrant Tools or Pocket Cutlery?*

A Member: If the experiences of most members are such as it was with one of my customers, I would say no. We sold a man a Hatchet, warranted it, and the tool was taken away and brought back by the carpenter who purchased it, broken through the eye, as he claimed, by driving four-penny Nails. He insisted that he was driving four-penny Nails and the Hatchet flew apart. A carpenter working with him came into the store and said to me: "Did you give so and so a Hatchet for the one he broke?" I said "Yes." "What did he say?" "He told me he broke it driving four-penny Nails." "He is a liar," he says. "I saw him break it mortising."

Mr. Meinriding: There are exceptions to all things. I remember one day selling a Razor, and the customer returned it and said it was no good, and I questioned him about it. He said it was very rough. Finally he said he had honed it on a grindstone. I find, however, that in warranting any kind of goods you are sometimes imposed upon. I find also, where you have country trade, you can make a larger profit by warranting the goods, and you can stand being imposed upon once in a while.

A Member: We have found it a very good rule to take back a Knife; we get a sort of standing for reliability. We had a case where a fellow brought back a Pocket Knife who said he broke it cutting plug tobacco. We had a case where a man bought a Padlock, and he came in one evening and said we ought to give him a new Padlock. I asked him how much he paid for it. He said \$1. I asked him how long he had had the Padlock and he said he had had it for eight years.

Once in a while we are mistaken in a person who returns a Pocket Knife. I had one brought back that the man said he broke by truing the blades. I thought it was a pretty good story, but I gave him a second Knife. He brought back the second Knife and showed me how he did it, and while he was showing me it broke and flew three or four feet away. Sometimes they are too highly tempered, they break in that way, and I think the best way to do is to take them back.

The following questions were only briefly touched upon, the time for the Question Box having expired:

15. *Where do State's prison made Stoves go?*

16. *Do you give a customer a present when he pays his account?*

17. *To what extent should the retail dealer be influenced by the advice and opinion of the traveling man in regard to making purchases and placing future orders?*

18. *Why not petition Congress to pass a law compelling all goods made by trusts to be stamped as such, the same as imported goods are stamped?*

19. *Where is the proper place for the office in a retail Hardware store?*

20. *What shall be done with competitors that have no honor?*

21. *Shall we close our stores at 6 p.m.?*

22. *Does the Ohio Hardware Association indorse an Ohio Hardware Mutual Insurance?*

Death of W. V. Marquis.

The report of the special committee on resolutions relating to the death of W. V. Marquis was as follows:

Whereas, The Great Ruler of the Universe has in His infinite wisdom removed from our association a worthy and esteemed fellow laborer, W. V. Marquis of Bellefontaine, Ohio, and

Whereas, The intimate relation held by him during a long business life in his own city, and with the Ohio Hardware Association, makes it fitting that we record our appreciation of him; therefore

Resolved, That the wisdom and ability which he has exercised in aid of our association work, by his counsel, service, and ever ready voice, will be held in grateful remembrance.

Resolved, That the sudden removal of such a man from our association, in which he has been so deeply in-

terested since its organization, leaves a vacancy that will be deeply realized by all its members, especially those who knew him personally, and will prove a grievous loss to his family, city, the public, and our association.

Resolved, That with deep sympathy with the afflicted relatives and friends of the deceased, we express an earnest hope that even so great a bereavement may be overruled for the highest good.

The report was adopted, and it was ordered that a copy of it be sent to the family of the deceased and to the papers, and that the same be recorded on the minutes of the association.

In Regard to a National Association.

The following letter from Z. T. Miller, president of the Illinois Retail Hardware Dealers' Association, addressed to the president of the Ohio Hardware Association, was read, bringing up the matter of a conference to be held March 12 to consider the advisability of forming a national association:

A number of the officers of State Retail Hardware Dealers' Associations, believing that the importance and efficiency of our State associations could be greatly increased by national association, have decided to hold a national conference in Chicago, March 12, for the purpose of harmonizing action in all the States upon issues now pending in either, eliciting ideas upon deriving the greatest possible efficiency of organized effort, and to discuss the preliminaries of national association.

Note the change of date due to the fact that so many State associations convene during February, and uncompleted inventories, preventing a number of representatives from attending on date first contemplated for meeting. We deem it very important to the success and influence of this conference that its conclusions be evolved from the largest possible representation of interests. Please request your association to consider this matter and provide for proper representation. The benefits likely to result from such meeting are too apparent to need extensive explanation. The fact that at present each State association represents less than 8 per cent. of the efficiency possible through closer co-operation with sister associations and a like ratio depreciates the importance of State associations to the dealer, demonstrates the necessity of uniting our efforts through some manner of a national representative body.

We all realize that the launching of a successful national association will require time, labor and careful forethought, yet the need of such an association can never become more important than it is to-day, nor can it ever be accomplished without a beginning. The conference is fully indorsed by H. A. Cole (president of Iowa Association), Frank Rudy (president Kansas Association), J. A. Cole (secretary of Kansas Association), H. W. Weber (president Michigan Association), W. S. Richardson (president Texas Association).

We are all interested alike in the success of this meeting. Please feel at liberty to make any suggestion that may present itself to your mind, upon subjects to be considered, arranging of programme or plan of organization. Let your representative come prepared with copies of lien laws, anti-department store laws, fraudulent advertising laws, peddler laws, &c., now in operation or pending in your State, and a knowledge of their strong and weak points. Other subjects likely to be considered at this meeting: What Issues Important to the Trade are now Pending in Your State? Proposed Postal Parcel System, Do Trade Conditions Demand any Revision of Import Duties? Do Trade Conditions demand any Change in Our National Monetary System? Should our National Bankrupt Law be Abolished? Co-operative Influence to Be Brought to Bear upon Manufacturers and Jobbers, Co-operative Buying, &c.

Please advise me whether your representative would favor the meeting with a paper on any of these subjects, or upon any other subject, of his own selection, pertinent to the occasion.

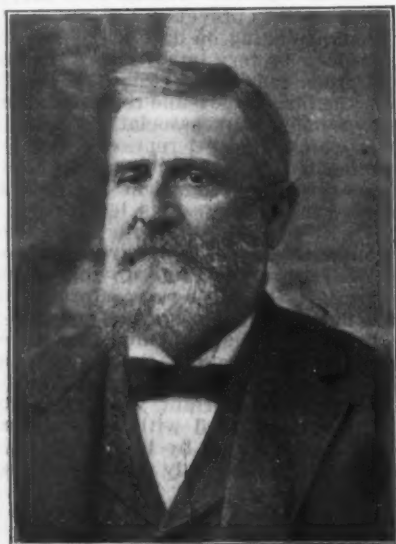
Hoping your association will give this matter due consideration and be properly represented at the conference, I remain, &c.

After discussion as referred to below, the fact was developed that there was considerable diversity of opinion in the convention in regard to the advisability of forming a national association at this time, the motion to take part in such meeting being finally negatived by a very close vote.

The President: This matter is now open for discussion. I should like to say a few words upon the subject. We some time ago endeavored to establish a national association of this kind and failed. We do not want it

to fail again, and while I am told that beyond any doubt a national retail association will be formed, we have the right to say here whether or no we are in favor of it. Personally, and after going over the ground very carefully, and as your president, and outside of any official connection with this association, I do not believe that the time has yet come when we will get the proper benefits from a national association. We are to realize that we have but a few among all of our 45 States that have associations. In each one of these associations there is not to exceed the one-fourth of the Hardware trade of the State. When the time does come for a national association, I feel personally that this association will be with it. When a majority of our States have Hardware associations, and when in these States they shall have a majority of the Hardware dealers in each State, then what we ask for through a national association will come to us. I do not believe that now, if we were to organize as a national Hardware association, we would have accruing to us one particle of benefit. I should like to hear from others on that subject.

Mr. Fearn: I feel like taking opposite ground from our president. He has possibly studied the question more than I have and given it more thought. But it seems to me that because we have not got a majority of States organized is not sufficient reason why we should not go into a national organization. I was told yesterday by our secretary that when this organization started we had 13 members; out of that we have grown to 347.



O. M. SCOTT, President.

Out of those 13 members who were the originators of this organization were some in the same line as Mr. Wiseman. You have got to make a start some day. The time is ripe now for a good retail national organization, and I feel like asking, and if I could I would insist, that we send representatives with the other States in Chicago. To get this matter fairly before you, I move you, Mr. President, that on the date set a member of our organization be sent to Chicago to represent us here. I think it would be fitting to send our president or our secretary, whoever he may be at that time.

Mr. Scott: I do not know as I am competent to express any opinion on this matter. It is a new thing to me. We might get something here that is not just right, and we might negative something that we ought to vote for. How would it do to put this matter in the hands of the Executive Committee to discuss it and look after it, and leave it to them to see whether it is best or not?

Mr. Meyer: The gentleman that made this motion to send a representative of this organization to this meeting in Chicago I think is right in that matter. When this association was formed there were some preliminary meetings held by the gentlemen who formed this association, and this meeting in Chicago I understand is only to be a preliminary meeting. I think the gentleman is right in asking to send a representative there.

Mr. Scott: Mr. President, I have had one or two talks some weeks ago with our efficient president and secretary. They have had a great deal of correspondence about this thing, and it is their opinion that it is not wise or that the time has not come to enter into this national organization and to advocate it. Therefore, I shall oppose the matter on the strength of the opinion of the president and secretary.

The President: The question is before you, gentlemen. The motion is, that we send a delegate to this preliminary conference tending to the formation of a national retail Hardware association at about March 12. I will call for a rising vote.



W. P. BOGARDUS, Vice-President.

The vote was accordingly taken, and the motion was declared lost, 97 voting in the affirmative and 98 in the negative, a good many members refraining from voting.

The Secretary's Services.

In view of the laborious and efficient services of John F. Baker, the secretary and treasurer, it was unanimously voted that \$200 be paid him in recognition of his excellent work on behalf of the association.

Resolutions.

Committee on Resolutions, through its chairman, Mr. Bogardus, rendered the following report, which was on motion adopted:

1. That the members of this association reaffirm the resolution of 1898, to wit: That we pledge ourselves to patronize no manufacturer or jobber who employs special salesmen to solicit orders from consumers or others not in the regular Hardware trade, this resolution not to apply to the supplying of large plants with material



GEO. M. GRAY, Corresponding Secretary.

used in the construction of their manufactured products.

2. That we again urge action on the part of our members, where there are two or more retail Hardwaremen in the town, looking toward forming a local organization, to the end that they may become better acquainted and more harmonious in their work.

3. That we recommend that there be a special committee appointed who shall present the need for, and urge the passage of, a suitable lien law to the Legislature now in session.

4. That we again protest against the exorbitant charges of the express companies.

5. That the corresponding secretary be instructed to urge upon our Senators and Representatives in Congress the necessity for favorable action on Senate bill 1439, which confers the powers on the Interstate Commerce Commission originally conferred, but which have been nullified by the decisions of the Supreme Court.

The following resolutions were also presented and carried by unanimous vote:

That we desire to express as an association our appreciation of the efforts of our hosts, the manufacturers' and jobbers' Committee of Arrangements and the firms and corporations they represent, to entertain us; that we thank them heartily and are prepared to recommend them as hosts *par excellence*.

That the association extends its hearty thanks and expression of appreciation of the efforts of the local retail Hardware dealers of the city of Cleveland for their magnificent arrangements and efforts in our behalf.

That a special vote of thanks be extended to our own member of this committee, Mr. Davidson.

That a vote of thanks be extended to the president, H. C. Wiseman, for the able manner in which he has presided.

Election of Officers.

The following officers were elected unanimously on the recommendation of the Committee on Nominations:

President, O. M. Scott, Marysville.

Vice-president, W. P. Bogardus, Mount Vernon.

Corresponding secretary, George M. Gray, Coshocton.

Financial secretary, W. H. Jones, Columbus.

Treasurer, H. G. Woodward, Sidney.

Executive Committee: George B. Meyer, Cincinnati; George Guyton, Ada; Frank Harrison, Toledo; A. C. Rohrbacher, Akron; H. P. Davidson, Cleveland; Frank Winter, Lancaster; James B. Carson, Hamilton; and J. H. Brown, Washington Court House.

In putting these names in nomination a felicitous address was made by T. S. Morris, the chairman of the committee, and after their election graceful acknowledgment was made by Mr. Scott, Mr. Bogardus and others.

Cincinnati for Next Meeting.



The delegation from Cincinnati were active in their efforts to have their city chosen for the next meeting, and, with this end in view, wore and gave to other members badges of white satin ribbon, as shown in the accompanying illustration. They were rewarded by having their city chosen by the unanimous vote of the convention. Other cities were desirous of having the satisfaction of welcoming the association, but recognized the claims of Cincinnati for 1901.

THE BANQUET.

On Thursday evening a banquet was given to the members of the association and invited guests. It was originally intended that it should be served in the Chamber of Commerce Building, but it was soon learned that this would not be feasible on account of numbers, and the Grays' armory was chosen. The armory was tastefully decorated with flags of all nations and a profusion of flowers and tropical plants, which rendered the scene exceedingly attractive. At the head table the following persons were seated: Henry C. Wiseman, toastmaster; R. R. Williams, C. S. Van Wagoner, John F. Baker, Marshall P. Wilder, Rev. E. R. Baker, O. M. Scott and E. L. Harris. After an excellent dinner admirably served, during which music was rendered by an orchestra, ex-President Wiseman, who officiated as toastmas-

ter, made a happy address, in which he acknowledged the hospitality of Cleveland and its munificent entertainment. He then introduced O. M. Scott, president of the association, who made the following interesting



Cover of Menu.

address on Nails, which was received with marked evidences of approval and appreciation:

Mr. Scott's Address.

The Nail is defined as an instrument for uniting or fastening two or more objects together. So it seems fitting to introduce it at this time, for the purpose of nailing this sumptuous feast of the body to the intellectual menu about to be served. If the speakers on this occasion succeed in serving the mental menu as gracefully as the caterers have the material, this will be most felicitous.

There can be no more important or appropriate subject to the Hardwareman. Of all the countless articles we keep in stock or handle, Nails are pre-eminently paramount. The smallest "cross roads store" has at least a keg of "8's." Because he keeps Nails, such a merchant would not be eligible to membership in this association. Neither would the largest jobber or retailer be eligible if he did not carry 8-penny Nails in stock. The smallest article we keep is the most weighty—a mustard seed from which springs a tremendous trade tree.

NAIL RESEARCH.

The first mention we have of Nails is over 3000 years ago: "In the building of the altar of burnt offering, all the vessels of the tabernacle, and all the pins thereof, and all the pins of the court, shall be of Brass." Thus it seems that the first Nails were of Brass.

Some 200 years later we find the first mention of the pin as a Nail: Judges—4—21: "Then Jael, Heber's wife, took a Nail of the tent; and a hammer in her hand, and went softly unto Sisera, and smote the Nail into his temples and fastened it to the ground, for he was fast asleep and weary. So he died." As a murderess, she "hit the Nail on the head."

The first mention we have of Nails in quantities is where David prepared "Iron in abundance, for the Nails for the doors of the gates, for the joinings," for the building of the temple. The Holy of Holies was covered with plates of gold, fastened with Nails of gold. The weight of the Nails were 50 shekels of gold.

The only gold Nails we hear of in modern times is the gold Spike driven to celebrate the completion of a railroad.

To-day it takes several gold dollars to buy a keg of Nails.

HOW NAILS WERE MADE.

The making of Nails is one of the oldest of the handicraft arts, dating back to the earliest working in metals. It is only within the last century that machinery has been used to any extent in their manufacture. Before the invention of Nail machinery an immense number of

persons were employed in their manufacture. They were called "nailers."

In 1606 Sir David Bulmer obtained a patent for making Nail Rods by water power; but Nail machinery was not put into actual use in England until 1790, when Thos. Clifford patented a Nail machine, using rollers faced with Steel, with sunk impressions of one-half the Nail on each. The bar of Iron was run through these, the Nails coming out in a string; the head of one being slightly joined to the point of the next. In 1775 Jeremiah Wilkinson of Rhode Island cut Tacks from Sheet Iron and afterward Nails and Spikes, forming the heads in a vise. Josiah G. Pearson of New York patented the first Nail cutting machine in 1794. In 1795 Jacob Perkins, also of New York, obtained a patent for a Nail cutting machine, with a capacity of 200,000 Nails per day. The Cut Nail came into general use about 1810.

"Nails" is our key word. So it is for the contemplating builder. He quotes the price of Nails the first thing. He is determined to "hit the Nail on the head" in the purchase of his Nails. He wants the lowest price on the article that cuts the smallest figure in the cost of his structure. In this he is not a successful Nail driver.

FEATURES OF THE HARDWARE TRADE.

The field for Nail driving for the Hardwareman is very wide. The Hardware business presents as many features and phases and opportunities for "hitting the Nail on the head" as there are different kinds of Nails manufactured.

There is the buying Nail, the selling Nail, the stock



H. C. WISEMAN, Ex-President.

keeping Nail, the old stock Nail, the jobber Nail, the drummer Nail, the courtesy Nail, the amiability Nail, the cash Nail, the credit Nail, the collecting Nail, the citizen and "man of affairs" Nail, the handy Nail in the pocket, the "too numerous to mention" Nails. I will not attempt to speak of all of these.

OLD STOCK NAIL

The old stock Nail is a pretty hard chap to "hit on the head." Something like trying to drive a 20-penny head foremost in a seasoned oak plank—no damage to the hammer or plank. Just a few weeks ago, in conversation with a traveling man, he spoke of a member of this association: a good business man, has a big stock, quoted high—but, Oh! what a lot of old stock he has around him. He drives most of his Nails successfully.

COLLECTION NAIL.

I would attach especial importance to the collecting Nail. If it does not need driving home, I don't know which one does. After apparently "hitting the Nail on the head," making a supposed good credit sale, it is hard to donate your good time and "good goods" to a goodless scamp, wishing your good goods had been nailed to your good shelves with good Clinch Nails. By the way, Clinch Nails are like knowledge: of great value and profit when properly driven, in the right place, at the right time. They require the greatest skill and wisdom, however, in the clinching. I've had any amount of trouble, by not only hitting them on the head, but by hitting them on the business end. I suppose there is not a dealer here but has clinched many a deal that he would like to have unclinched; could not possibly "un-clinch what he had clinched amiss." The Hardwareman should not go security.

THE DRUMMER NAIL.

There is the drummer Nail, with the more dignified name of traveling man. Some of them, Oh! most of them, have good heads and are well pointed. Have you ever been tempted to "hit one of them on the head?" There is no class of men on the road that make better



E. L. HARRIS, Ex-Vice-President.

use of the Square and Compass than the Hardware traveling salesman. As has been said, the Nail is an instrument to unite two or more objects together. So the traveling man has the trying office of drawing the retailer and the jobber together, like the Clinch Nail—business at both ends. The traveling man is seldom responsible for the stuffing of orders. Traveling men are the same as other men, like Axes, Saws, Augers and other Edge Tools; divided into "Selects," "Fair," "Seconds," "Culls," "O. K.'s" and "N. G.'s." The orthodox Hardware traveling salesman is all right; but, Oh! some of these machine fellows—

THE ADVERTISING NAIL.

We all have had wrestling matches with the advertising Nail, throwing up the sponge at the first round. Some Nails will perform their proper function, even if their points are faulty.

But don't drive the advertising Nail unless it has a good point.

KNOW YOUR OWN BUSINESS.

I must call your attention to the "know your own business Nail." None of us know how to drive this



JOHN F. BAKER, Ex-Secretary-Treasurer.

Nail. If we do, what are we here for? Our very presence is a confession that we are seeking more light: how to drive the thousand or more Nails connected with our craft. The Hardwareman should be up to now. We expect the carpenter to be a skillful Nail driver, knowing just where and when to drive, putting the right

Nail in the right place, no Nail in the wrong place, not one too many or one too few. If he lacks one, his job will be incomplete. If he drives one too many, he will, in a two-fold sense, violate the law of economy by wasting material and energy.

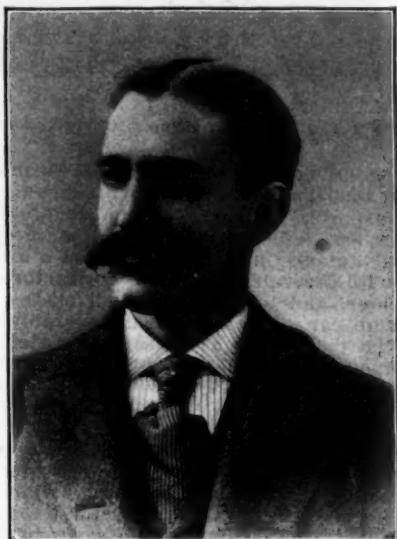
Thus the business man should erect the structure of his business, so that it will be complete in all its factors: strong and symmetrical; all its necessary parts properly assembled and clinched together. The business structure thus complete should be spiked to a moral character alike strong and complete, good, beautiful and true.

A WRAK SPOT.

Incompleteness may bring about disaster. Three or four years ago, Mr. Fox, a contracting bricklayer, of Marysville, Ohio, had the contract for erecting a school house in Covington, Ohio. While capping a chimney the scaffold fell, precipitating him to instant death. One laborer died from injury. The third man held by his finger tips to the wall till rescued. The testimony of the survivor is that one more Nail would have made the scaffold secure.

GOOD AND BAD CHARACTERISTICS.

In our business the one lacking Nail may be the honesty Nail, the push Nail, the pluck Nail, the perserverance Nail, the diligence Nail. The Nail too many may be the lazy Nail, the sour disposition Nail, the "put off"



H. P. DAVIDSON, Member Executive Committee.

Nail, the drinking Nail—Oh! the wrecks that follow in his wake. By the way, the Executive Committee of this association "hit the Nail on the head" when it ruled out the drinking Nail at our banquets.

The action yesterday in unanimously adopting this by-law drove the Nail home; and all now know that when Ohio Hardwaremen open a keg of Nails it contains no whisky Nail. (Continued applause).

No business was ever wrecked for the want of the beer Nail or the whisky Spike.

SOME OF THE USES OF NAILS.

Every trade and profession makes liberal use of this midget of our trade. Their use begins in the cradle and ends in the coffin. The squatter's hut and the millionaire's mansion are alike the beneficiaries of its cohesive properties. Even the politicians essay to be good Nail drivers. One would think that from the frequent cry: "Another lie nailed," we would some time have a campaign when no lies were at large. (No reference to Cleveland politicians.) The Hardwareman will enter no objection to the use of Nails in nailing up lies. We would freely furnish the Nails—Clinch Nails at that—to nail up all the liars; provided the Hardwareman is left out.

The Hardwareman should be immune to all misrepresentation.

The Nail was "hit on the head" when the lucky "13" met in Columbus on October 13, 1894, and planted the seed that has multiplied into this assembly. Surely, we have exploded the abominable "13" heresy. The first session was held February 13, 1895.

The Hardwareman should be free from all superstitious foolishness.

WHEN A GOOD THING WAS DONE.

The Nail was "hit on the head" when the association was called the Ohio Hardware Association—leaving

out the word "Retailers." We bid the jobber welcome. Our interests are one, and we will co-operate with the jobber in nailing a tripartite union, with the drummer in the middle.

ALLUSIONS TO RETIRING OFFICIALS.

It is fair to suppose that the association's presidents are selected on the basis of ability, character, good



FRANK HARRISON, Member Executive Committee.

judgment and level headedness in general, and since the action of the association to-day I may add good looks. This association has done well in selecting the only "Wiseman" we had for its president. Mr. President, you have skillfully placed, and successfully driven, many association Nails.

I hope it will be my fortune to keep its standard as high as I find it.

We stand aghast when we try to count the good brown loaves upon which this association has feasted, and fattened—yes, expanded—that have been handed out by our Baker. If you, Mr. Secretary, have failed to "hit the Nail on the head," occasionally, we will excuse you on the ground that you have "done it up brown."

We have been fortunate in selecting our Executive Committee. They are all (save one) a capable, jolly, good looking set of fellows; and, given a shoe hammer, could drive an "8d Fence" into a pine board. Our handsome vice-president, Harris, is an advisory member of this board.

The Cleveland branch of our fraternity did a skillful



GEO. B. MEYER, Member Executive Committee.

piece of nailing when they invited us here. All the features of this meeting go to prove that it was a masterful stroke when the invitation and acceptance were nailed together. (This was done with Finishing Nails.)

What can I say about the Cleveland committee as Nail drivers? I will let them go with a story; there is

a man living in this city, who was known as a pious boy, and so continued until he arrived at early manhood. For some reason he "fell from grace," a fact which was not generally known. Being at dinner with some friends the host called upon him to render thanks at the dinner table; and with an embarrassed look, he said: "I pass."

The manufacturers of Nails "hit the Nail on the head" in making a Nail suitable for every need. As before said, the first Nails were known as pins. The latest Nails out are to be known as "Bingham's Hat Nail" and "Worthington's Universal Pin." Hang up your hat, pin down your vest.

SOME GREAT HARDWAREMEN.

We lay claim to some of the greatest men of the nation as Hardware dealers. Can any of you name a greater delivery of Hardware to the square minute than Dewey dealt out on that May morning before breakfast in Manila Bay?

The Hardwareman should get up early. The biggest Hardware deal I know of was when Admiral Cervera delivered his entire assets, including his shelfworn stock, also his brave and manly self, to Sampson's fleet off Santiago; no part being marked "C. O. D.," "60 days, 2 off 10"—not even "Remit at your convenience." Our English friends and the Boers seem to be making large exchanges of Hardware just now. How would our traveling men like to be the "drummer in the middle?"

Evidently Longfellow was not familiar with the Hard-



A. C. ROHRBACHER, Member Executive Committee.

ware trade, else his "Psalm of Life" would have run something like this:

LONGFELLOW MODERNIZED.

Drives of great men all remind us,
We can drive our trade sublime,
And, departing, leave behind us
Nail prints in our business line.

Nail prints, that perhaps another,
Driving o'er the Hardware main,
A distressed and bankrupt brother,
Seeing, may drive Nails again.

Let us, then, be up and nailing,
With a Nail for every place;
Still a-nailing, never failing,
And with nailing end the race.

Mr. Van Wagoner's Address.

C. S. Van Wagoner of the Van Wagoner & Williams Hardware Company evidently needed no introduction, as one of Cleveland's progressive manufacturers, and as chairman of the Reception Committee, known to the members of the association and their guests. His address was an interesting and able statement of the city's position as a Hardware and Iron center, his subject being

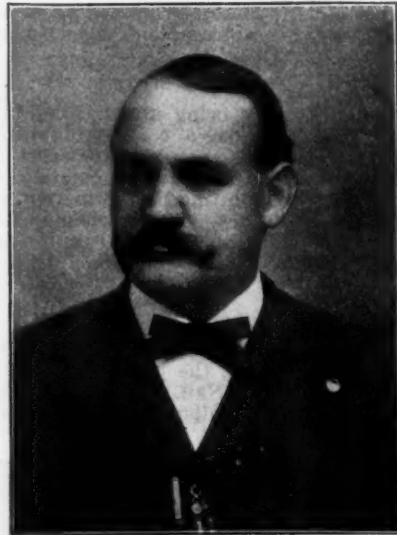
Cleveland's Manufacturing Interests.

The prosperity of great cities is often due to some natural advantage they enjoy. That of Cleveland is owing to its location on the south shore of Lake Erie, at a highly favored point for the manufacture of Steel and

Iron, and the handling of Iron Ore and Coal. These, with its boat building and shipping interests, together with great concentration of capital and favorable conditions for labor, are the main factors in its development.

ON HIGHWAY BETWEEN EAST AND WEST.

It is on the great northern route, between the East and the West, but a short distance from and connected



LEWIS F. STAHLER, Ex-Member Executive Committee.

with the great middle route across the country. From it radiate nine great railroads, with steamer lines and water transportation to all points on the great lakes.

Not the least among the causes of its growth are its natural advantages in being situated on a high and level plateau, with favorable conditions for factories and storage purposes, and for homes for all classes. Here the workingman can have a home as favorably situated in all essential particulars as those of the rich. This is a great influence in developing an intelligent, moral and contented laboring class.

ACCESSIBILITY OF RAW PRODUCTS.

Here the Iron ores from the Lake Superior region meet the Coal and Coke from Pennsylvania and Ohio, and the Limestone from nearby points, which make this the cheapest section in the country for the manufacture of Steel and kindred products. The great Iron industries of Pittsburgh are at a disadvantage with Cleveland from freights and other matters of consequence,



WILL A. REMY, Ex-Member Executive Committee.

but the invested capital will probably keep them right along under the same conditions.

AN IMPORTANT MANUFACTURING CENTER.

As a natural consequence we have become a manufacturing center of much importance. Here products from Iron and Steel enjoy advantages of manufacture, and

also those of distribution. The conditions are also favorable for the manufacture of a great variety of products.

SOME LEADING PRODUCTS.

Among our manufactories is a great plant for rolling Steel Rails, Bar Iron, Billets and Rods; extensive plants for Sheet Iron, Wire drawing, the making of Wire into Nails, and a great variety of commercial and artistic uses. Here is made the finest Boiler Plate, Forgings on the most extensive scale, Propeller Shafts and Rudder Posts for our great war ships and ocean steamers. One of the largest Steam Hammers in the country is here in use.

About 30 foundries are making large and small Gray Iron Castings, and there are extensive malleable iron works. We turn out Cast Iron Pipe, Machinery for beet sugar, Special Machinery, Electrical Machinery and Elec-



C. C. FOUTS, Ex-Member Executive Committee.

trical equipments, Carbons in large quantity, Gasoline Stoves, Sewing Machines, Sewing Machine Cabinets, Bicycles, Screws, Tacks, Ball Bearings and Balls, Twist Drills, Carriage and Saddlery Hardware, Builders' Hardware and Hardware Specialties, Paints, Varnishes, Refined Oil, Table Salt, Chemicals, Chewing Gum and many other articles.

Notable among these products are Astronomical Instruments and Instruments of Precision. A firm here have built three of the largest telescopes of the world, that for the Yerkes Observatory, the Lick Observatory and the Washington Observatory, together with thousands of other telescopes for colleges and Government purposes.

AN EPOCH IN VESSEL BUILDING FOR LAKE TRADE.

Among our great manufacturing concerns is one whose hoisting and conveying apparatus has played a most peculiar part in the development of Cleveland and in solving engineering problems in its field of operations. In 1881 the largest vessels used in the ore and coal trade had a carrying capacity of about 1000 to 1200 tons and were of wooden construction. To-day our largest vessels are built of steel and are of 8000 tons burden. This remarkable development is due largely to the increased facilities for unloading and loading brought about by the Hoisting and Conveying Machines of this company. In the old days the largest wooden vessel would require a week's time to unload by the old methods. Now a vessel of 8000 tons can be unloaded of iron ore in 12 hours and loaded with coal in ten hours. The same docks have been given eight times the former storage capacity. The saving in cost of handling has been enormous. Through this agency a vessel 1000 feet long or more could be loaded and unloaded in a single day as easily as a vessel of 100 feet in length. Few realize what a potent factor these machines have been in developing the iron ore and bituminous coal industries, and helping to make Cleveland the principal market in both of these lines.

CLEVELAND OUR GREATEST SHIPBUILDING PORT.

This is the greatest shipbuilding port of the country, estimated by the annual tonnage of vessels built. Here also is the largest ownership and control of tonnage in the vessel carrying trade.

It will readily be seen that Cleveland as a manufacturing point has great advantages in certain directions, and has a foothold which is sure to develop to grand proportions in the future. The influences at work are forcing this promising city along at a rapid rate.

portions in the future. The influences at work are forcing this promising city along at a rapid rate.

CLEVELAND, 1836, COMPARED WITH CLEVELAND, 1900.

In 1836 Cleveland was but a village; in 1850 a city of 20,000 inhabitants, with a telegraph just established, no railroads, with but five lines of stages and one incoming and outgoing mail per day in different directions; in 1890 a population of 261,000, and in 1900 it has probably about 380,000 or possibly 400,000 inhabitants. At this ratio of increase it is reasonable to suppose that the 1,000,000 mark will be reached about 1925. Most of you can reasonably expect to see that day.

With this grand vista before us we picture this favored city, with its great material wealth, its imposing commercial buildings and institutions, its public buildings grouped in a fine park along the lake front, its churches, colleges and magnificent school system, its handsome residences and comfortable homes, its beautiful parks and boulevards encircling the city, growing and developing into one of the most powerful and magnificent cities of this great land.

Beyond all this we have faith to believe that the men of those times, the rising generation, well educated and highly intelligent, will work out their problems and seek the ennobling things of life more and more in the spirit of righteousness and good will toward their fellow men.

Address by R. R. Williams.

The last address was made by R. R. Williams, Hardware editor of *The Iron Age*, who, after acknowledgment of the hospitality extended to the association and its friends, touched on the development of the spirit of fraternity between competing merchants and throughout the trade as a whole, and emphasized the importance of the members of the association putting into effect the practical suggestions received at the convention and of carrying on still further the good work which the organization has accomplished.

Recitations and Music.

Marshall P. Wilder of New York was then introduced and entertained the gathering with admirable stories



W. P. SCOTT, Ex-Member Executive Committee.

and witticisms which were greatly enjoyed. After music by the orchestra and quartette, and the singing of "Auld Lang Syne" by the entire assemblage, the members separated after a most enjoyable and successful evening.

CONVENTION NOTES.

The Cleveland Retail Hardware Dealers' Association were constant in their attention to delegates, having a large reception committee to look after the comfort of the visitors. Their headquarters in the Builders' Exchange were thrown open, a courtesy much appreciated and enjoyed. H. P. Davidson, the president, was indefatigable in his efforts and made many friends.

The rooms in the Colonial Hotel, which were thrown open by the W. Bingham Company, Cleveland, for the

use of the members of the association, were visited by many of the delegates, who appreciated the courtesy extended and made use of the facilities offered for correspondence, typewriting, &c. The company's traveling salesmen of Ohio were called in and devoted themselves to attentions to the members.

Hibbard, Spencer, Bartlett & Co., Chicago, occupied parlors A, B and C in the Colonial Hotel, where they displayed a large line of Hardware novelties, Cutlery, Bicycles, Fishing Tackle, Guns and General Sporting and Athletic Goods. The exhibit was in charge of J. G. Wright of the Sporting Goods department, and F. C. Smith of the Cutlery department, assisted by the Ohio traveling force. The unusually complete line of the goods on exhibition attracted much attention.

The Taylor & Boggis Foundry Company, Cleveland, had an attractive exhibit in room H of the Colonial Hotel. In this way their increasing line of Builders' Hardware and their Oil and Gas Stoves were attractively presented. The exhibit was in charge of J. Willey Smith. The room was effectively decorated with Armor and artistic fittings, manufactured by Taylor H. Boggis of Cleveland.

At the conclusion of the entertainment at the Chamber of Commerce on Wednesday evening, the Nicholson File Company, Providence, represented by Fred. H. Smith, and E. C. Atkins & Co., Indianapolis, represented by J. W. Perkins, entertained many of the delegates in the large banquet hall of the Stillman. The Hungarian Gypsy Band and a banjo team were in attendance and furnished both instrumental and vocal music.

The Rubber interests of Cleveland were well represented by the Ohio Rubber Company, manufacturers of Mill and Railway Supplies and a large variety of Rubber articles. The company united with the other manufacturers of Cleveland in extending hospitality and attentions to the delegates.

A. C. Rohrbacher, who was chosen one of the Executive Committee of the association, is prominently connected with the business interests of Akron. Besides the Hardware business, in which he is engaged, he is president of the Jahant Company, manufacturers of Furnaces and Tin and Sheet Iron Workers, and president of the Akron Foundry Company, and is also connected with banking interests.

On Friday evening many of the delegates were enabled to accept invitations to the reception given by the McIntosh-Huntington Company, Cleveland, to their employees at the Colonial Club.

E. C. Atkins & Co., Indianapolis, Ind., occupied room 111 at the Colonial Hotel, where they had on exhibit an extensive line of their Saws and other products. Their exhibit was in charge of W. E. Jackson and Julian W. Perkins, assistant secretary of the company, was also on hand. A tasty souvenir in the form of a thermometer was liberally distributed.

The Van Wagoner & Williams Hardware Company of Cleveland gave to the visitors an attractive bronze paper cutter of artistic design as a souvenir.

Many of the visitors availed themselves on Friday and Saturday of the opportunity of visiting the different manufacturing establishments. Systematic arrangements were made by the Reception Committee for facilitating such inspection and special provision was made by most of the factories to give the visitors ample opportunities of observation.

The George W. Worthington Company gave out an elegant leather pocketbook as a souvenir.

Buck Williams has discontinued his Hardware business at Van Buren, Ark., and is now connected with the Atkinson Hardware Company at Fort Smith.

Price-Lists, Circulars, &c.

CHICAGO SPRING BUTT COMPANY, Chicago, Ill., issue a 1900 catalogue. Illustrations and prices are given of Spring Butts, Floor Hinges, Lavatory Catches, Fire Engine House Door Latch and Catch, Door Springs, Door Pulls, House Numbers, Push and Kick Plates, Shoe Blacking Foot Rests, Door Hangers, Track, &c.

JOSEPH HUSE & SON, Boston, Mass., issue a catalogue and price-list of Repairs for all Ranges, Stoves and Furnaces made and sold in New England. The company do not handle Repairs for goods made outside.

THE LISK MFG. COMPANY, Canandaigua, N. Y., issue an illustrated catalogue of Anti-Rusting Tinware. The company's line has been largely increased since their last issue and many important features added. They refer to their trade as constantly growing and state that last year's business was the largest and best in their history.

THE NEW JERSEY FOUNDRY & MACHINE COMPANY, 26 Cortlandt street, New York, issue an illustrated catalogue devoted to Overhead Tracks, Conveying and Hoisting Machinery, Door Hangers, Fire Door Fittings, Expansion Bolts, as well as Mining, Quarry, Wrecking, Crane, Steam Shovel and Dredge Chains.

CARY MFG. COMPANY, 19-21 Roosevelt street, New York, issue an illustrated catalogue devoted to Box Straps, Fasteners, Clasps, &c. Also to Seals, Package Protectors, Box Corners, Hasp and Hinge, and Box Strap Stretchers.

BOSTON BELTING COMPANY, Boston and New York, issue catalogues and price-lists, illustrating Hose and Hose attachments, and mechanical Rubber Goods. The catalogues are noticeable for the attractive style of bindings and general make-up.

J. S. DEUSE, Chester, Conn.: An illustrated catalogue and price-list of Hardware Specialties. Included are Mechanics' Tools, Cork Screws, Ice Chisels and Picks, Tack Claws, &c.

CRONK HANGER COMPANY, Elmira, N. Y.: 1900 catalogue. This illustrates Door Hangers, Hay Fork Pullies, Stay Rollers, Garden and Lawn Rakes, Garden Mattock, Grass Hook, Pliers, Tack Pullers, Pruning Shears, Hedge and Grape Shears, Ice Picks, and Chisels, Rubber Pump Buckets, Chopping Knife, &c.

MORRILL & MORLEY, Benton Harbor, Mich.: Catalogue of Eclipse and Eureka Spray Pumps and Atomizers. This catalogue describes the special devices manufactured by this firm for spraying vegetables, fruit plants and trees. These devices are the invention of extensive fruit growers who experienced the desirability of efficient apparatus to spray on a large scale, and have combined in their spraying Pumps great capacity and power with durability of working parts. The catalogue gives full descriptions of these Pumps and their method of construction and use.

THE GRAND RAPIDS REFRIGERATOR COMPANY, Grand Rapids, Mich.: Catalogue of Northern Light and Polar King Refrigerators. This catalogue is a specially attractive publication of 64 pages, presenting a great variety of Refrigerators, suitable for all purposes. The designs for domestic use are particularly comprehensive. A special feature of the Northern Light Refrigerator is the ease with which it can be thoroughly cleaned. The galvanized iron ice tank can be lifted out. It is fitted with adjustable sliding shelves also made of galvanized iron. The waste pipe is likewise removable. The outside cases are of ash elaborately ornamented.

THE NORTHERN REFRIGERATOR COMPANY, Grand Rapids, Mich.: Illustrated catalogue of Glacier Seven Walled Cold Dry Air Refrigerators. This catalogue is an unusually fine publication, comprising 88 pages, and giving a great variety of illustrations of all kinds of constructions from small sized Boxes to ornate sideboard Refrigerators and large cooling Refrigerators for the use of grocers, &c. A departure from the usual method of getting up catalogues is the insertion as leaves of sample sheets of charcoal sheathing and wool felt, such as are used in securing the insulation of these Refrigerators.

CHAMPION BLOWER & FORGE COMPANY, Lancaster, Pa.: Their 192-page 1900 edition catalogue, just issued, is a most comprehensive volume and fully covers all the manufactures of the company, comprising the Champion Steel Forges, Lever and Crank Blowers, Portable Forges, Blacksmith Drills, Tire Benders, Screw Plates, Taps and Dies, Tire and Axle Shrinkers and Welders, Fan Blowers, Exhaust Fans, Steel Pressure Blowers, Disk Wheels, &c. Copies of the catalogue can be secured upon application to the company.

WITHINGTON & COOLEY MFG. COMPANY, Jackson, Mich., issue a pamphlet devoted to Corn Hooks. A variety are shown, including adjustable and serrated.

Illinois Retail Hardware Association.

(Continued from Our Last Issue.)

WEDNESDAY AFTERNOON.

PRESIDENT MILLER called the convention to order at 2 o'clock, announced that the secretary had received a letter from a member of the association and asked to have it read. The secretary read it as follows:

PHOENIX, A. T., February 19, 1900.

L. M. Reeves, secretary, Peoria, Ill.

Dear Sir.—Inclosed find draft for \$3, covering dues for 1900 of Schulte & Siecke, Freeport, Ill.

Notice that I am out here in Arizona (for my health), and it will be impossible for me to attend the second annual convention of the Illinois Retail Hardware Dealers' Association. However, I expect in future to attend many, and you will always find me as enthusiastic for the success of our association as ever. I think it advisable at this meeting to agitate further the organization of a National Retail Hardware Dealers' Association. Let Illinois call a meeting, and I believe all States will join in. Of the subjects suggested on your list, the one of Parcel Post system, in my estimation, is one that should be given some attention by the retailer. If this law becomes operative it will drive millions of country merchants out of business. It will in a measure also affect the jobber, because the less the retailer does the less will be done by the jobber. You perhaps have noticed the increase in the number of catalogue or mail order business houses; and particularly in small cities and towns within the last year or two. I did not think anything about it formerly, when some one remarked, "The mail order business is the only one nowadays to go into, &c.," until lately it has become such a temptation for many to go into that it behooves the retailer to consider what effect the passage of such a law would have on his own affairs. It is a scheme of some of the large houses to have the Government pay delivery charges on their packages, so they can do the retail trade of the country. You can rest assured that these merchants are working quietly for its passage, and unlike our doings are not made public. A good idea would be for the convention assembled to pass a resolution praying all Illinois Congressmen to oppose the law and have the secretary mail each a copy of the same.

Hoping the enrollment will show a large increase in membership, and with best wishes for the success of the association, I am

Yours truly,

OTTO L. SCHULTE.

The secretary was instructed to acknowledge its receipt, and express the appreciation of its sentiments by the association.

W. B. Costello was then called upon to read a memorial address, which he had prepared on the deaths of Theodor Krueger and Ehler Goettsche. It is as follows:

W. B. Costello's Memorial Address.

He who would address you to the memory of the departed founders, workers and collaborators of organizations of this character in the great commonwealth of Illinois has before him a great, noble, deep and sympathizing subject, a subject worthy of the expressions of the polished scholar and orator; worthy of the master plastic hand of the sculptor or the painted, polished, poetic words of the songster and the poet, so that when we arise in our stand to-day at the hour set apart by those in charge to commemorate the memory and noble deeds and actions of our respected and departed treasurer and executive officers of this organization, in the persons of Theo. Krueger and Ehler Goettsche, we realize most keenly the inappropriateness in assigning this noble theme to the inexperienced mind and hand, and wish that the eloquence of a Demosthenes or Cicero might be represented, that justice might be done. But, be that as it may, the subjects of this teeming, resourceful theme, born as they were in the fatherland of Germany, trained beneath the traditional lines of a monarchical form of government, chafing, undoubtedly, beneath the restrictive opportunities of their native land, left their home and beloved friends, and crossed the ocean's stormy deep to seek new homes in a western world, on western soil, beneath the effulgent rays of a republic's protecting arm.

HOW WELL THEY HAVE BEEN REWARDED

for sacrifices made in youthful days; how well they have achieved success for their steadfastness and determined

integrity of purpose amid colossal opportunities to the contrary; how well they have been rewarded for their noble qualities of heart and mind and brain, their benevolence of hand in both commercial and social circles, is illustrated by the score of friends, true and tried, gathered at their funeral bier to pay their last sad respects and show their regard to the endearing dead. It is also evidenced by the material success they have achieved in life's great struggle, by the broad command they possessed and by the high personal esteem in which they were held, showing, my dear friends, that forceful character in any line of energy, properly directed, brings with it success in every clime and nation; showing that active, energetic and intelligent manhood, tenderly yet courageously guided into all the details of human life, brings with it a cheer and good will, a touch of human happiness, equaled by no other element of mankind's nature, giving to the youthful and inexperienced mind and hand a new ray of hope, a broader field of action, an awakened energy into the higher pathways of duty, making of him a broader, better, nobler man and a more useful citizen; a duty, which, according to all laws of sociology, is due from one citizen to another; yet, alas, only too often and too frequently in this rapid age of steam and electricity; in this crucial age of critical competition, commercial rivalry; in this corporate, monopolistic age gone mad in its avaricious desire for the accumulation of material wealth, regardless of personal, municipal or national integrity; only too often is this grand principle trodden under foot, ignored and forgotten. Not only ignored but cursed, that laws are made that keep men from doing wrong and consequently make men do right. In all this great battle for social leadership; in all this great struggle for political preferment; in all this great conflict in the intellectual field; in all this great contention

FOR COMMERCIAL SUPREMACY,

right or wrong, it matters little. To win the day is the battle cry heard far above the tumult and turmoil of the waving, surging crowds as they pass down the different avenues of vocations.

And when in the midst of all this agitation, where each of us find ourselves at some time or another, oftentimes, every day, we see arising from amidst the undulating throng two manly forms, standing head and shoulders above the masses surrounding them, developed in all the details of manhood relating to commercial integrity, directed by their broad commanding force of character, the different struggling elements of the thronging masses, attracting to themselves the moral forces for good instinctively placed in all bodies of men, gathering day by day these different elements of commercial good, husbanding and garnering the same into one grand, uplifting movement, wherein all men are made better.

SUCH GRAND, NOBLE CHARACTERS

as these for the good of all, we see represented in our departed and lamented friends, the State Treasurer and executive officers of this organization, whose memory we, at this hour, so appropriately commemorate and whose zeal for the success of this association was unwonted and undaunted.

Realizing the need of such and grasping the situation with that undaunted, determined will characteristic of the German stock, whence they came, they did much toward the founding and establishing of this organization, represented here to-day, and of which they held high hopes for its future wide and extensive usefulness in gathering the Hardware trade of the State and eventually of the nation into one common body for friendly emulation and common good.

Now that with all kindly feeling and touching memories we leave all that is mortal and human to the cold embrace of Mother Earth in Graceland and Waldheim, whence Christian thought has taught us to believe that all human kin and kind has sprung. We leave them to the tender mercies of an all-just God, and turn our thoughts and attentions to those of the living and say to them:

If they have done naught else than lived the noble lives they have lived, set the example they have set for them and theirs, they have done much toward accomplishing the task the great Creator had allotted them. But they have done more: They have set an example that has left its footprints on the sands of time, so that coming generations in future years may see the product of their heart and hand and brain, and seeing, may take on new

zeal, new force, new life, new energy and be better men and nobler women for having followed the example set by these our endeared friends.

A copy of this memorial was ordered spread upon the minutes and a copy sent to the families of the deceased.

G. R. Lott, chairman of the Committee on

Changing the Constitution and By-Laws,

reported the following proposed changes, all of which were approved:

In Article 2 of the Constitution the word "stock" in the third line shall be made to read "Hardware."

Add to the same article the following: "Applications for membership received by the association from houses about whose eligibility there may be some question shall be acted upon by the Executive Committee before membership in our association is considered complete. Only houses whose main stock consists of Hardware shall be considered eligible."

That Article 4 shall be changed by striking out the words "by ballot" in Section 1.

Add to Section 2 of Article 4, after the word "president," "with the approval of the Executive Committee."

Article 5 to read as follows: "The regular meeting of this association will be held annually on the third Tuesday of February, at such place as may be determined by the convention. The Executive Committee shall meet at the call of the president, and the necessary traveling and hotel expenses of this committee shall be paid out of the funds of this association."

Article 6: Strike out all after the word "present."

Article 7: Insert after the word "treasurer," the words "and secretary."

H. G. Cormick of Centralia: I desire to call the attention of the convention to the article providing that an investigating committee of three members shall be elected annually at the annual meeting of the association. I move that that article be changed to read that the investigating committee consist of five members and they shall be distributed over the State, and that three members of that committee shall constitute a quorum to do business. The motion was adopted.

The Committee on Resolutions

submitted the following, which were adopted:

Whereas, It has come to the knowledge of this association that our president has labored earnestly and faithfully for the purpose of forming a national organization,

Resolved, That we hereby approve of the action taken by our president for the purpose of forming this said national organization.

Resolved, That it is the sense of this convention that we suggest our president and secretary as our representatives to attend the meeting to be held March 12 for the purpose of organizing a National Retail Hardware Dealers' Association; that this association pay the necessary traveling and hotel expenses of said committee.

We wish to commend the efforts of our retiring officers during the past six months to make this meeting a success. The large attendance at this meeting is sufficient recognition of the labors that they have performed, and we hope that the incoming officers will be able to make a showing as satisfactory to the members of this association in the coming year as the past have done. We also desire to mention the fact that we appreciate the efforts of the various manufacturers who have made the splendid exhibits and opened headquarters in connection with our convention. The Hardware papers who have so diligently worked with our Executive Committee to make this convention a success deserve a word of thanks from this body, as they have been ever willing to co-operate with us and have used their influence for the advancement of our interests.

The meeting has been an interesting and enjoyable one from the very beginning, made so by the untiring efforts of the local committee, supported by the jobbers and citizens of Peoria, even the Mayor guaranteeing to our members the freedom of the city during our stay, and we wish to thank them all for their efforts in our behalf.

Resolved, That the next annual meeting of this convention be made a two days' session if possible.

Resolved, That a good trade paper is indispensable in a wide awake house; that every retailer ought to take at least one.

Resolved, That the Illinois Retail Hardware Dealers' Association desires every legitimate Hardware dealer in Illinois to become a member, and we hereby urge the retail Hardware dealer of Illinois who is not a member to immediately communicate with our secretary and

have his name enrolled without waiting for personal solicitation or the next annual meeting.

Resolved, That we greatly appreciate the efforts in entertaining the members of this association during annual sessions; and we would recommend in the future that the entire expense of entertainment should be borne by the members of this association.

Resolved, That the thanks of this association be extended to the Peoria local press for publicity given to the convention and courtesy shown to the delegates.

Whereas, Several Hardware houses within our territory have established both wholesale and retail departments, running the same under the same name; be it

Resolved, That this association is strongly opposed to such system. We believe that a Hardware dealer should be either a wholesale dealer or a retail dealer; that a house desiring the retailer's trade should not be expected to compete against his own customers. Be it further

Resolved, That the officers of our association confer with such houses during the coming year and attempt to remedy this evil if possible.

The Special Committee

appointed by the president on February 5 to prepare a paper on a number of topics interesting to the trade had no report to make. Mr. Cormick made the suggestion that the president at this session appoint a number of members to prepare papers for next year and in that way ample time would be given them for the purpose.

Jobbers and Traveling Men

were called upon for remarks, the president observing that he would especially like to know whether jobbers consider it good policy to endeavor to do the wholesale business of the country and then sell to the retailers' customers. Many responded to the invitation and quite a number of very interesting addresses were made. Among those who availed themselves of the opportunity thus presented were E. H. Walker of the Walker Hardware Company, Peoria; Geo. W. Trout of Chicago, John V. Kloener and G. S. Winders of Hibbard, Spencer, Bartlett & Co.; George Lubbe of the Simmons Hardware Company, J. A. Mitchell of Holmquist & Co., Chicago; J. O. Becraft and R. R. Elliott of the Round Oak Stove Works, John Le Page of the Bridge & Beach Mfg. Company, R. J. Millar of the Detroit Stove Works, Howard Maffray of Rathbone, Sard & Co., Henry J. Sawyer, Jr., of the Joliet Stove Works; Mr. Hyde of the Schneider & Trenkamp Company, B. C. Millington of Taplin & Rice, W. W. Turner of Chicago, T. S. Watson of the Twin Burner Stove Company, J. J. Sinzich of Geo. H. Bishop & Co., W. H. Bliss of the Robinson Furnace Company, H. M. Lewis of the Peerless Steel Range Works, Geo. W. Gladding of E. C. Atkins & Co., Fred. C. Shays of the W. Dewees Wood Company and Frank Smith of Clark, Quien & Morse. The representatives of the trade press were also called upon to add their contributions to the general expressions of good feeling.

Auditing Committee.

The Auditing Committee made the following report:

We, the undersigned Auditing Committee appointed to examine the books of the secretary and treasurer, have examined same and found them correct. The committee, after carefully considering the financial condition of our association, would recommend that each member be assessed \$1, owing to the fact that it is no more than proper to compensate our president and Executive Committee at such times as they are called away on official business.

(Signed.)

W. J. KRUEGER.
WM. BITTEL.
D. D. VELDE.

The report was received and adopted.

Election of Officers.

W. B. Costello, for the Committee on Nominations, presented the following list of officers as their choice:

President, Z. T. Miller of Bloomington.
Vice-president, George A. Engelhardt of Chicago.
Secretary, L. M. Reeves of Peoria.
Treasurer, F. F. Porter, Chicago.

EXECUTIVE COMMITTEE.

Z. T. Miller, Bloomington.
G. A. Engelhardt, Chicago.
L. M. Reeves, Peoria.

F. F. Porter, Chicago.
D. D. Velde, Pekin.
D. McLaughlin, Chicago.
L. Babst, Kankakee.
L. Rosenberg, Chicago.
Charles Mauer, East St. Louis.

GRIEVANCE COMMITTEE

Fred. Kurtz, Chicago.
H. G. Cormick, Centralia.
J. A. Hunter, Peoria.
F. E. Bonney, Paxton.
H. N. Murphy, Galesburg.

The committee also nominated the following gentlemen to attend the conference at Chicago for the purpose of forming a national association: Z. T. Miller of Bloomington and L. M. Reeves of Peoria.

The report of the committee was received and the officers nominated were elected by acclamation.

On motion, H. G. Cormick of Centralia and H. M. Griffith of Rushville were added to the committee to attend the Chicago conference.

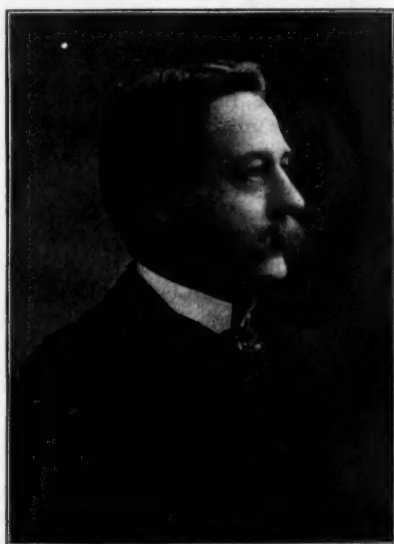
On motion, the committee to attend the Chicago conference were authorized to select their own alternates.

The president suggested that, to save extra labor for the secretary, the Grievance Committee elect a chair-

of the Northwest Association of Chicago in a social way, until about two years ago I received an invitation from this organization to meet with them for the purpose of a grievance against a gas company of our city. I was then thoroughly aroused and awaited the coming of



GEO. A. ENGELHARDT, Vice-President.



Z. T. MILLER, President.

this meeting with some anxiety, as I had a bone to pick with this company myself. Here was a great corporation putting its foot on my head, a very weak arm to guard off the blow and needed assistance, and wanted my neighboring Hardwaremen to come to my assistance. I was very agreeably surprised, upon entering that night, to find about 60 or 70 men who felt just as I did.

The gas company was represented at the meeting and given some pretty strong talk. Before this representative left our meeting he was thoroughly impressed with the fact that he did not have a few individuals to deal with, but had one organization to deal with, who would either assist his corporation or fight them. They wisely decided that they needed the assistance of the Hardware dealers, and ever since then the Chicago Associa-

man and secretary and that the members refer any grievances to the secretary of the Grievance Committee direct. If the Grievance Committee have anything to refer or any conclusions to report they can do it to the secretary of the association.

Galesburg Chosen.

The question of selecting the next place of meeting was taken up. An animated contest ensued between Galesburg, Springfield, Decatur, Bloomington and Freeport, and it resulted in the selection of Galesburg.

Honorary Members.

The following amendment to the constitution, to be known as Section 2 of Article 11, was adopted:

Applications for honorary membership may be received from parties not directly interested in the retail Hardware business, who shall be entitled to the social benefits of this organization, but not be admitted to business meetings and have no vote. The fee for honorary membership shall be \$2 and annual dues \$1.

LOCAL ORGANIZATION AND ITS BENEFITS.

The following papers on this subject were read by W. J. Krueger of Chicago and Wm. Bittel of Peoria:

By W. J. Krueger.

In addressing you on the subject of local organization and its benefits, I will say, about eight or nine years ago, from the time of its first inception, I occasionally heard



LEWIS M. REEVES, Secretary.

tion had no trouble in adjusting any difficulty that arose with this company.

I wisely chose to become a

MEMBER OF THIS ASSOCIATION

at that time, and it occurs to me now, no matter how small the town, they should have an organization like ours. We are all in the Hardware business for the

profit that there is in it, and we can certainly transact all our business with more satisfaction to ourselves when we know that our competitor is a friend of ours rather than an enemy. A local organization can adopt a plan of buying such as the Chicago organization has, which will be thoroughly explained to you by our Mr. Engelhardt.

SOCIAL MATTERS

should not be entirely forgotten in a local organization which, although out of the line of direct benefit, is still of interest to such a body. You can ask the ladies to share a little pleasure in getting up a picnic or ball. Your organization immediately becomes looked upon with favor by them. I wish to state right here, as nearly all our members do, in regard to enthusiasm, I look to the regular meeting with pleasure, and any obstacle must be very severe that will prevent me from attending these meetings. By all means, gentlemen, if you have no local organization in your town, get together and unite at once and meet regularly, and you will never forget that you have formed an organization.

By Wm. Bittel.

The title of this paper represents an important topic, forming one of the foundations of a successful State organization.



D. D. VELDE, Member Executive Committee.

When we consider how much animosity has heretofore existed between fellow merchants in their business relations, often extending into social life, the benefit of a friendly feeling is at once apparent.

ORGANIZATION

is the only way this can be accomplished, which has been done in our city, and there never has been, in the recollection of the pioneers of the Hardware trade, as much good feeling and sociability as exists here at the present time.

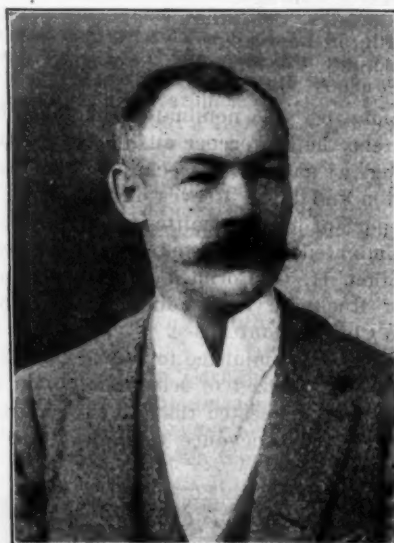
PEORIA ASSOCIATION.

The enormous advances in all kinds of merchandise during the past year caused one of the most remarkable periods in the history of the business. This fact alone is responsible for the successful consummation of our local association, as several of the more far sighted merchants realized that unless immediate steps were taken the year 1899 would result, instead of handsome returns, in discouraging failure. They had anticipated their wants far ahead and did not feel disposed to give the goods away. Therefore, when one of my competitors suggested that the matter be taken up I offered my hearty co-operation.

A meeting was called for March 17 to which six merchants responded, and preliminary arrangements were discussed. The formal call was drawn up and all mer-

chants signed (as one outsider would make uniformity impossible), agreeing to abide by all prices made by the association.

The first schedule of prices was adopted on March 29,



OTTO L. SCHULTE, Ex-Member Executive Committee.

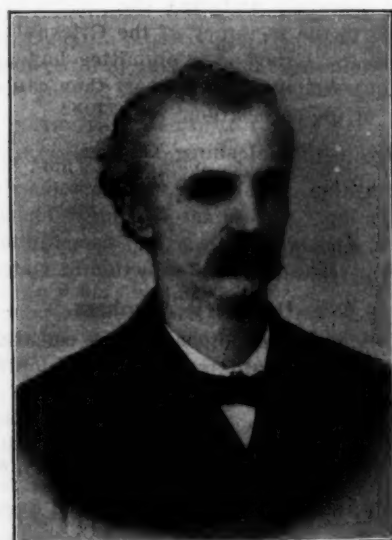
and included Nails, Wire and other staple goods, forming a basis for that which followed.

The association meets every week and each member is allowed to present such articles as, in his estimation, needed revision, and at the present time every leading article carried in Hardware is listed.

Several times, through a misunderstanding, differences have occurred, but as any one was apt to err anything of this kind was overlooked after explanation had been made.

NO SHOPPING DONE NOW.

In the past, before we were organized, it had been a common occurrence to have a customer find fault with any price, no matter how low it may have been, but this has been eliminated, as when this is said now we know it to be untrue, and many customers are beginning to realize that shopping among Hardware dealers, with



S. A. CRISSEY, Ex-Member Executive Committee.

the expectation of saving a few cents, is a thing of the past, as far as Peoria is concerned.

I have endeavored to present to you a plain statement of what good has been done, with a sincere desire that my fellow merchants do likewise, so that all towns having several dealers will have uniform prices and friendly intercourse, and the next time we assemble in conven-

tion will have the pleasure of knowing that harmony has characterized the year.

Co-operative Buying.

Geo. A. Engelhardt of Chicago read the following paper on Co-operative Buying:

Being called upon to give my views on co-operative buying, I shall endeavor to give you a full and comprehensive account of my experience on this most important subject.

Surrounded as we are by department stores of every description, whose sole object seems to be to undersell the legitimate dealer on seasonable goods, it behooves us to get a move on ourselves and prevent them from doing this, and if possible to undersell them.

Why is it that we are undersold by these large department stores?

Because they buy in larger quantities.

Can we buy the same quantities they do? I say no! Being unable to do this single handed, the question now is: What step should be taken to put us on the same buying basis? There is only one, and that is

CO-OPERATIVE BUYING.

Co-operative buying is a benefit to the retail dealer as well as to the general public. It enables us to buy and sell our goods, so bought, at as low and oftentimes at a lower figure than the department stores. We all buy and sell at the same price, thereby working together in perfect harmony and preventing all price cutting, which is otherwise done to meet competition.

EXPERIENCE OF CHICAGO.

About five years ago the Chicago Hardware Dealers' Association began the experiment of co-operative buying, and continues to do so with great success, and the result is that it is now one of the leading topics of every Hardware association in the United States.

We began our co-operative buying by appointing a committee of two or three members, who, being well posted and having had long experience, were particularly suited for the undertaking.

This committee would notify all of the best manufacturers that they were ready to receive bids for the association. This method in itself would lead manufacturers to make their rock bottom prices. These bids and also samples of the various lines would be brought to our meeting, and after a critical examination the best, but not always the cheapest, would be decided upon. The successful bidder would then be notified of the fact by our secretary.

Some manufacturers in quoting prices would state a certain amount, and then allow a rebate if a certain specified number were bought during the season. This rebate varied from 10 to 30 per cent. In cases of this kind the buyers would call for specifications, and if the necessary amount could be purchased would take the rebate in consideration in making their selection.

Goods bought on this plan would of necessity have to be billed to the buyer, and by him rebilled to the members of the association. For his services the buyer having this in hand receives a

COMMISSION

of 5 per cent., but for all goods billed by manufacturers direct to the dealers he receives no remuneration.

One of the most important facts in co-operative buying is

SECRECY ON QUOTATIONS.

Most all manufacturers in submitting prices will instruct the buyers to instruct the members to hold the prices as confidential. But invariably some member, striving to outdo the buyers, would let his mouth run away with him, and blow it all in the ears of an unsuccessful bidder.

Right here is where the

TROUBLES OF THE BUYERS

begin. This unsuccessful bidder, out of pure spite for some fancied wrong, would then name this dealer a price which would be as low as the price obtained by the buyers.

This dealer, thinking he had a cinch on his fellow dealers by stocking an article which his competitors did not and would not carry, would place an order.

Now, supposing this article was one that the buyers had bought subject to quantity rebate, and also, supposing that several dealers did the same thing, how can you expect the buyers to make up the necessary total? Shall they buy and pay for the goods out of their own pockets? Strange as it may seem to any fair minded person, this had to be done by the buyers on two occasions. I know from my own personal experience that this everlasting blabbing has had the effect of hindering us in

obtaining prices for the next season. Such dealers are not worthy of the confidence placed in them by the buyers, and ought to be deprived of the benefits the buyers are able to give them. All dealers should bear in mind that it is the quantity that makes the price and not the buyers.

I have also noticed that the bidders generally wait until we had made our selection before selling or quoting

DEPARTMENT STORES.

These lines bought through the buyers have always been a bee in the department store buyer's ears. It makes them hustle. They cannot undersell us. As an instance that will better illustrate the object in view I will say that at one time we bought two lines of Blue Flames. One we were sure the department stores could not get and meet our price, and the other we were equally sure they could get. In the case of the former we had things our own way, and in regard to the latter I have this to say. Last summer a certain department store down town came out with a big advertisement reading, "Brightest and Best Blue Flame Oil Stoves, Only \$4.95." You could have bought this same Stove from any dealer in our association for \$4.40, and we made a good profit even at that figure.

A very important factor in the matter of co-operative buying is the subject of

CREDITS.

It is of the utmost importance that goods billed to you direct should be paid inside of 30 days. The same is equally true in paying for goods billed to you through the buyers.

Regarding the former, by paying your bills promptly your trade will be sought after and the buyers can obtain the best prices. Regarding the latter, if your buyer assumes your account you should make it your business to return his money to him with as little delay as possible. In every instance where I had assumed the accounts I had to pay for part of the account out of my own pocket and then wait from two to four months before the parties saw fit to repay me. I am happy to state that these parties are only a very few in number. Right here it may not go amiss to state that there are some

CHRONIC KICKERS

who seem to think that the Buying Committee is composed of a lot of millionaires, who have no business to look after, whose time is their own, and who have no other motive than to secure for them such goods as they may want, and then to cap the climax they kick because the buyer is receiving a measley 5 per cent. for all of his trouble. Let any of these kickers handle and collect for a carload of goods and I will bet 10 to 1 that he will be the sorriest man in town.

I think I have proven my assertions at the last meeting of the Chicago Hardware Dealers' Association, when by hard wrangling we succeeded in securing three members who were willing to accept the buying committee. Not one out of 50 was willing to act. The kickers' time has come, and I will say right here, that as far as I am concerned, if the kicker wants my job he can have it, and I will thank him very much for the favor. If the kicker does not want the job then it is time the kicker stopped kicking. I beg the gentlemen's pardon for stating these things in this meeting, as they seemingly belong only to the Chicago Dealers' Association, but I was called upon to give you my experiences as a buyer, and I am endeavoring to give you both sides of the story as I have found them. It may be of some service in aiding us to draw up a set of rules governing these points when the

ILLINOIS HARDWARE DEALERS' ASSOCIATION

is ready to tackle the subject of co-operative buying.

The old saying, "What is good for the goose is not always good for the gander," will also apply to co-operative buying in

CHICAGO AND COUNTRY TOWNS.

Buying as we do in Chicago, all goods are either delivered to our stores, or, in case of outside shipments, are billed to Chicago, either f.o.b. here or at point of shipment. This is all right as far as Chicago is concerned, but it may not be of any benefit to the out of town dealer. This, of course, is something that will have to be studied more closely, and I think our country cousins will be better able to make a decision when the time comes for action. My opinion is that the saving in price will more than offset the difference in freight by not less than from 10 to 20 per cent.

Regarding co-operative buying at the present time, my opinion is that the

COMBINATION OF MANUFACTURERS

will have a tendency to higher prices, even to large buyers, and I think that it will take an enormously large order to make one or the other come down. Manufacturers and jobbers are organizing to secure better prices. We must follow their example in order to secure better prices for ourselves and our trade. It will certainly be a very hard and trying undertaking for the buyers to get anything worth having at reasonable figures. Comparisons have often been made between the

LARGE AND SMALL DEALER

relative to association buying. How often has the question been asked, "What do you who buy 50 or 100 Stoves a season, gain over your competitor, who buys only 10 in a season? As far as profit is concerned, I gain nothing. But I also find that I can buy cheaper, and my competitor a good deal cheaper, and I also find that doing so adds another to the list of department store fighters, and, lastly, I find that co-operative buying furnishes us with the only weapon with which we can ever hope to fight our common enemy, the department store.

I have found that co-operative buying has drawn the members more closely together, has given us a larger attendance at our meetings, made a membership in our organization worth going after, and, above all, has done away with that jealous feeling concerning business matters that existed some eight years ago. Co-operative buying is a good thing. Push it along.

Programme for 1901.

Referring to the programme for next year's meeting the president said:

There is an important item that I want to mention in regard to our next meeting. Your officers were greatly handicapped in preparing a programme for your meeting. As you are aware, last fall we went to Chicago, and we were strangers; we are just beginning to get acquainted with one another. Prior to this time we did not know whom to select to take part in the programme. I have made a list, and I want to notify all on it that they are going to be on the programme in 1901. I shall not assign your subjects. I will let you study this matter up yourself and see upon what subject you would like to speak. I will read the names: Messrs. Bonney, Costello, Griffith, Cormick, Lott, Reeves, Miller, Rosenberg, Shaw, Bittel, Swan.

On motion of W. J. Krueger it was made a special duty of the Executive Committee to investigate and report at the next meeting plans of operation for the ensuing year.

After some discussion on the question of Co-operative Buying the convention adjourned for the purpose of further discussing the same subject on the following morning.

WEDNESDAY EVENING BANQUET.

The Hardware interests of Peoria, including jobbers, manufacturers and retailers, entertained their visitors at a banquet at the Fey Hotel on Wednesday evening. It was an occasion that will long be remembered by all the participants. The local Committee of Arrangements distinguished themselves by their perfection of details. The tables were arranged in gridiron shape, and tastefully decorated with evergreens. The menu card was so artistic as to be worthy of preservation as a souvenir. The service was beyond criticism. A fine orchestra rendered enjoyable selections. Over 200 participated, and the scene was one on which the officers of the association gazed with pride, as they reflected that the association was barely six months old. At each person's plate was a fine leather souvenir card case, memorandum book and pocket book, presented by Clark, Quilen & Morse of Peoria.

Charles Clark of the same firm acted as toastmaster, ably filling the exacting duties of that position. Responses to toasts were made by H. G. Cormick, Chas. S. Jones, secretary of the Western Merchants' and Manufacturers' Association; R. H. Griffith, R. A. Culter, W. W. Turner, T. S. Watson, J. F. Parker, R. R. Elliott, Frank Wells, John Le Page, J. T. Neilson, F. E. Bonney, George Graves and others.

THURSDAY MORNING.

The president called the convention to order at 10 o'clock, and referred to some prominent retail houses in the Hardware line in Chicago who are not members of the Illinois Retail Hardware Dealers' Association, suggesting that it would be politic for the association to extend the courtesy to them of honorary representation in the delegation to the National Conference at Chicago.

On motion the president was authorized to appoint one or two honorary delegates to the National Conference at Chicago from the Chicago retail trade not represented in the State association at present.

Co-operative Buying.

The discussion of the question of Co-operative Buying was resumed, the president participating at some length.

At the conclusion of the discussion Mr. McCormick introduced the following resolution:

Resolved, That the results of the consideration of the questions of combination and co-operation at this meeting have been entirely satisfactory, and that we hope at no distant day to be of great financial benefit to our customers.

The resolution was unanimously adopted.

The convention adjourned *sine die*.

Members of the Illinois Retail Hardware Association.

The following complete list of members, taken from the secretary's books at the close of the convention, shows substantial growth as compared with the membership secured at the first meeting:

J. L. Smith, Chicago.
W. J. Krueger, Chicago.
D. McLaughlin, Chicago.
G. R. Lott, Chicago.
H. E. Gnadt, Chicago.
A. T. Matthieson, Chicago.
Cerveny & Hora, Chicago.
Sigfried Melohn, Chicago.
Fred. Kurtz, Chicago.
J. Borchardt, Chicago.
Geo. Engelhardt, Chicago.
H. Fehr, Chicago.
Estate of Theo. Krueger, Chicago.
A. Pophal, Chicago.
W. H. Decker & Co., Chicago.
J. H. Bixler, Chicago.
Henry Smith, Chicago.
L. Rosenberg, Chicago.
Herzog & Spindler, Chicago.
W. B. Costello, Chicago.
Aug. Greenheld, Chicago.
L. M. Matthews, Chicago.
B. F. Boysen, Chicago.
Charles Dalbke, Chicago.
F. H. Schanze, Chicago.
Jno. C. Rice, Chicago.
Ed. H. Biersdorf, Chicago.
Juergens & Kasten, Chicago.
A. Ruhling & Co., Chicago.
H. L. Peterson, Chicago.
Geier & Peppler, Chicago.
H. E. Redman, Chicago.
W. A. Ludwigs, Chicago.
Wm. Noebbling, Chicago.
L. H. Schmertman, Chicago.
Ernest Hauck, Chicago.
Frank F. Porter, Chicago.
H. E. Tying, Chicago.
Martin Engelhardt, Chicago.
Charles H. Menzel, Chicago.
Charles Dalstrom, Chicago.
Jno. Ruedel, Chicago.
Emil Sander, Chicago.
H. Muehlhan, Chicago.
Paul & Krogh, Chicago.
Z. T. Miller & Sons, Bloomington.
H. S. McCurdy, Bloomington.
Paxton Hardware Company, Paxton.
S. A. Crissey & Son, Marengo.
Lanark Hardware Company, Lanark.
Jacob Ballet, Edinburg.
Pekin Hardware Company, Pekin.
Weyrich & Son, Pekin.
Velde, Roelfs & Co., Pekin.
Bagby Bros., Tuscola.
H. H. Freye, Crystal Lake.

G. R. Keeling, Amboy.
 Schulte & Siecke, Freeport.
 B. H. Taber, Richmond.
 D. W. Dole, Manteno.
 F. L. Sleezer, Newark.
 L. F. Schroeder, Barrington.
 H. G. Cormick, Centralia.
 A. D. Kelly, Wheaton.
 Wm. Bittel, Peoria.
 Hunter & Strehlow, Peoria.
 Balzer & Reeves, Peoria.
 H. Sandmeyer & Co., Peoria.
 Sam'l Sells & Son, Peoria.
 Charles Johnson, Peoria.
 Couch & Heyle, Peoria.
 R. C. Aylward, Peoria.
 Geo. Noirot, Peoria.
 J. P. Becker, Jr., Peoria.
 H. J. Ehlen, Peoria.
 Thos. Giles, Peoria.
 F. Meyer & Bro. Company, Peoria.
 M. Pfeifer & Co., Peoria.
 O. C. Slane, Peoria.
 C. H. Tammen, Peoria.
 Treager & Matson, Peoria.
 A. B. Weers, Peoria.
 Wilson & Wolschlag, Peoria.
 D. H. Henshie, Pawnee.
 Fiedler & Leonard, Thomasboro.
 Van Velzer & Fetrow, Mason City.
 Wilson & Wilson, Mason City.
 McCullough Bros., Monmouth.
 Whitson Bros., Woodstock.
 Henry Sauer, Morrison.
 W. H. Menk & Son, Paw Paw.
 Lawrence Babst, Kankakee.
 H. S. Bellamy & Co., Sandoval.
 Powers & Williams, Streator.
 Geo. B. Swan, Mattoon.
 Hunter Hardware Company, Rockford.
 Jno. Killough, Clinton.
 Hoover & Vorhees, Bushnell.
 Peter Haas, El Paso.
 Fay Bros., Polo.
 W. A. Wilson, Macomb.
 Murphy Bros. & Anderson, Galesburg.
 Griffith Hardware Company, Rushville.
 Charles Mauer, East St. Louis.
 Priestley Hardware Company, Princeton.
 E. F. Hertz, Sheffield.
 Geo. P. Schmehr, Tonica.
 Strumpf & Chesnut, New Holland.
 Wadsworth Hardware Company, Jacksonville.
 Nish Bros., Elgin.
 Cline & Shaw Hardware Company, Galesburg.
 Schaub Hardware Company, East St. Louis.
 Jno. McKinney & Son., Piper City.
 Faith & Rommel, Latham.
 Ewan & Purdy, Lewiston.
 Miles & Simms, Lewiston.
 Houston & Evans, Vandalia.
 Hackett Hardware Company, Freeport.
 W. V. McKinstry, Delavan.
 Chillicothe Hardware Company, Chillicothe.
 Pierce Bros., Toulon.
 Poundstone & Refor Hardware Company, Ottawa.
 Crane & Connell, Farmington.
 F. A. Sager, Edelstein.
 J. W. Howard, Smithfield.
 E. M. Austin, Litchfield.
 Jno. C. Morse, Chandlerville.
 Fred. Waller, Lyons.
 J. W. Wood, Yates City.
 Gaddis & Hill, Fairview.
 Amsler Hardware Company, Tonica.
 Coulson, Brundage & Co., La Harpe.
 H. B. Brown, Wyoming.
 Kennish & Cable, Kewanee.

NOTES OF THE CONVENTION.

The Chicago delegation was sufficiently numerous to warrant the engagement of a private car. The Rock Island route was selected and a fast run was made from Chicago to Peoria on Monday evening. The Chicago members wore white silk badges lettered in gold. The State association badges were of red ribbon, also lettered in gold. The white badges loomed up very prominently in the convention.

The worst snow storm seen in the West for many years gathered Peoria in its embrace on Tuesday and Wednesday, greatly interfering with the operations of railroads. Up to Wednesday afternoon the efforts of

the active members of the association had been directed to the advancement of business in order to finally adjourn at that time. So many members found, however, that they would be obliged to remain in the city another day that an additional session was ordered for Thursday morning.

The hall in which the convention met could not have been better adapted for the purpose. It was of the right size and was extremely comfortable in every respect. In fact, in all the details for the entertainment of the convention the local Committee on Arrangements did most admirably.

The theatrical performance to which the visitors were treated on Tuesday evening was flavored with hits at sundry members of the convention by the actors which were hilariously received.

H. G. Cormick of Centralia won distinction as a clear headed parliamentarian. The presiding officer of a convention can be greatly assisted by efficient men on the floor who are alert to avoid tangles and straighten knotty proceedings. With President Miller's good judgment and Mr. Cormick's watchfulness the convention made a record for the dispatch of business.

The Illinois Association has in its membership an exceptionally large percentage of bright men, able to think on their feet and express themselves lucidly and logically. The discussions were therefore vivacious and interesting. The executive session "for members only" on Wednesday morning was highly educational to many and gave them a better idea of the value of meetings of this character.

The attendance of jobbers' and manufacturers' representatives was large. The traveling fraternity had been impressed by their customers with the importance of the gathering and flocked to it.

The Brand Stove Company of Milwaukee, Wis., represented by Secretary W. F. Hyde and Salesmen W. B. Lyman and George V. Renfrow, made a fine exhibit of samples of their products in the Fey Hotel. The samples comprised Brand's Admiral, Brilliant and Captain base burners, Famous steel ranges in three sizes, the Famous Midland and Famous Victor cast ranges, and Famous Norma and Famous Beacon cooks.

Geo. Harms, Jr., and F. Meyer exhibited specimens of the Handy furnace pipe manufactured by the F. Meyer & Bro. Company of Peoria. This is a double hot air pipe, made in pieces as long as 58 inches, ready to be put up without further fitting. Mr. Harms is also secretary of the Meyer Furnace Company of Peoria, manufacturers of the Weir soft coal all steel gas and soot consuming furnace, which is stated to be the original air blast furnace.

E. C. Atkins & Co. of Indianapolis, represented by Assistant Secretary Julian W. Perkins and Salesmen G. W. Gladding and Frank Wells, displayed a large line of their Saws, covering all varieties ordinarily carried by the Hardware trade. They distributed souvenir thermometers.

The Robinson Furnace Company, Chicago, represented by W. H. Bliss, exhibited a model of the Robinson Tubular Furnace.

The American Bicycle Company, represented by M. H. Force of the Gormully & Jeffrey sales department, Chicago, showed nine models of wheels, consisting of Ramblers, Ideals and the Clipper chainless.

The Joliet Stove Works of Joliet, Ill., represented by Lewis Moore and Henry J. Sawyer, Jr., exhibited one of their Steel Cook Stoves, Moore's Steel Gem. The company were the first to place on the market a Steel Cook Stove, and the venture has proved quite satisfactory.

The Patee Bicycle Company of Peoria made a display of their Patee Crest Wheels, comprising six models. W. W. Turner, 183 Lake street, Chicago, exhibited samples of the Torrid Gasoline Furnace for the use of tanners, plumbers, electricians, metal workers, &c.

The foregoing displays were all in the Fey Hotel, but the Quincy Foundry & Novelty Company of Quincy, Ill.,

exhibited samples of their Royal line of air tight wood heating Stoves in the Grant Hotel.

Among others observed in attendance upon the convention were the following:

J. O. Becroft and R. R. Elliott of the Round Oak Stove Works, Estate of P. D. Beckwith, Dowagiac, Mich.

H. M. Lewis of the Peerless Steel Range Works, Chicago.

John V. Klover and G. S. Winders of Hibbard, Spencer, Bartlett & Co., Chicago.

Geo. W. Trout of Geo. W. Trout & Co., Chicago.

Roy S. Tuttle of Chicago, representing the Reeves Iron Company, Cleveland Twist Drill Company, and Wiley & Russell Mfg. Company.

John J. Sinzich and C. A. Dager of Chicago, representing Geo. H. Bishop & Co.

R. A. Culter, H. L. Loomis and C. N. Cowles, representing the Culter & Proctor Stove Company of Peoria.

Howard Maffray of Rathbone, Sard & Co., Aurora, Ill.

John Le Page of Bridge & Beach Mfg. Company, St. Louis.

Fred C. Shays of W. Dewees Wood Company, Pittsburgh.

B. C. Millington of Taplin, Rice & Co. and May & Fieberger, Akron, Ohio.

H. H. Wallis and E. F. Wagenknecht of Wallis, Robinson & Co., Chicago.

W. C. Helmbuecher, Hardware factor, Chicago.

C. H. Garver of Chicago, representing the Bryan Mfg. Company, Bryan, Ohio.

W. E. Herrmann, representing the Reading Hardware Company, Chicago.

H. Sandmeyer, Jr., of H. Sandmeyer & Co., Peoria.

T. A. Stephens, Peninsula Stove Company, Chicago.

R. J. Millar, Detroit Stove Works, Chicago.

A. G. Cripps, Model Heating Company, Chicago.

Charles Clark and Frank Smith of Clark, Quilen & Morse, Peoria.

T. J. Bowler, Lawton Cutlery Company, Chicago.

H. F. Bertram, Ohio Stove Company, Portsmouth, Ohio.

Robert Jagers, L. J. Mueller Furnace Company, Milwaukee, Wis.

J. A. Mitchell of Holmquist & Co., Chicago.

George Lubbe of Simmons Hardware Company, St. Louis.

T. S. Watson, Twin Burner Stove Company, St. Louis.

J. F. Parker, of the Schnelder & Trenkamp Company, Chicago.

The trade press representatives comprised John W. Bowman of the *Stoves and Hardware Reporter*, Daniel Stern and S. P. Johnston of the *American Artisan*, and H. H. Roberts, C. F. Wieland and Geo. W. Cope of *The Iron Age* and *The Metal Worker*.

Hay-Budden Mfg. Company's Fire.

HAY-BUDDEN MFG. COMPANY, 257-265 North Henry street, Brooklyn, N. Y., manufacturers of solid wrought Anvils, Die Forgings, &c., had their entire plant destroyed by fire Saturday evening, March 3, the loss being estimated at upward of \$150,000, which is covered by insurance. The officers are not wasting any time on regrets, but are bending every energy to getting the plant into operation again. They hope to adjust the insurance speedily and begin at once the erection of an iron building. As soon as the sides and roof are in place, using the old foundations, which are intact, they hope to install enough new machinery and repair such as is not permanently injured, so that a good deal of stock, about 250 anvils, which was nearly finished can be put in marketable shape. They expect to be able to ship Anvils in three or four weeks from the date of the fire. In the meantime they have some large stocks of Anvils at advantageous points in the West, South and on the Pacific Coast, from which, it is hoped, all urgent

needs of customers can be supplied. This will not enable them to fill orders for any special goods but they expect to be able to so distribute the stock as to satisfy pressing wants until they are running again. In six or eight weeks they hope to be able to supply the trade better than ever before.

Requests for Catalogues, &c.

TRUE AND BLANCHARD COMPANY, Newport, Vt., wholesale and retail Hardware merchants, are enlarging their department of Electrical Supplies, and advise us that they would be pleased to receive catalogues from manufacturers in this line.

Ralph M. Burtis has withdrawn from the Frank Leach Hardware Company, Oshkosh, Wis., of which he was vice-president and manager. Mr. Burtis will embark in business for himself under the style of Ralph M. Burtis Company, and is now buying stock for this purpose.

B. E. Avery, in the Hardware and Implement business at Mount Morris, Ill., advises us that he would be pleased to receive catalogues from manufacturers and jobbers in these lines.

York Springs Hardware & Supply Company, Limited, York Springs, Pa., have acquired the stock, good will and fixtures of Geo. W. Hartzell's business, and it will be continued under the general management of Mr. Hartzell, associated with whom in the company are G. H. Troestel, A. Deardorff, G. A. Trimmer, H. F. Smith and G. E. Deatrich. It is the intention of the company to procure larger and more commodious quarters at an early date. Their line comprises Heavy and Shelf Hardware, Stoves and Tinware, Agricultural Implements, House Furnishings and Furniture. They solicit copies of catalogues, price-lists, &c.

Kendall & Kendall have succeeded E. B. Sherman in the retail Hardware, Stove, Agricultural Implement and Sporting Goods business at Manchester Depot, Vt. The new firm are intending to add to the stock in all branches and request copies of price-lists and catalogues from the trade.

Barnard, Thurber & Fitzsimmons, Jackson, Mich., will open a new store with an entirely new stock about March 26. They will be pleased to have copies of catalogues, price-lists, &c.

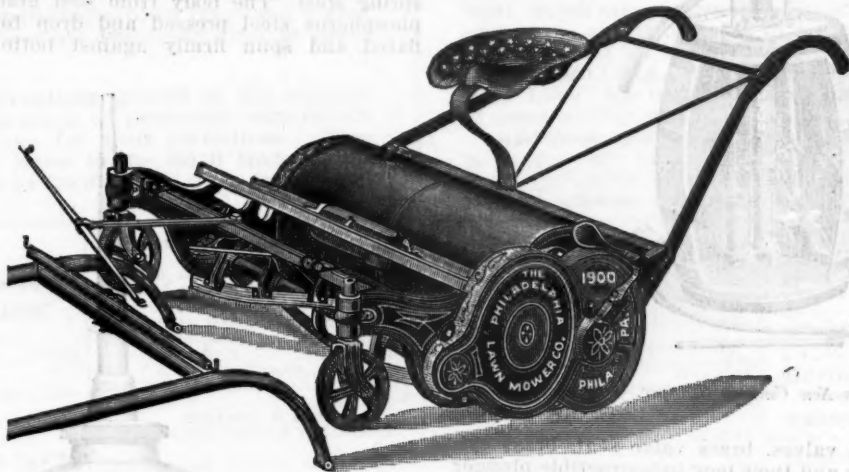
Wyoma Coaster and Brake.

The automatic Wyoma coaster and brake manufactured by the Reading Automobile & Gear Company of Reading, Pa., presents a number of points of merit which will doubtless recommend it to favor with the bicycling fraternity. Among the claims of superiority put forward by the makers are lightness of weight, neat appearance and simplicity of construction. In the application of the braking power the response is gradual or immediate, as occasion may require. A cone shaped fiber washer, fitting into a metal cap of the same shape, gives a braking surface. Hardened tool steel rollers are used in the clutch and in the roll carriers. The point is made by the manufacturers that when balls are used on an incline they are limited in their travels, and in a short time they make an impression which prevents them rolling the required distance. In the Wyoma, to overcome the objection referred to a carrier or cage is introduced for the rollers, to insure them always being in their proper positions upon the application of the brake.

Theo. Crowell has purchased the interest of J. H. Grant in the Hardware firm of Grant & Crowell, Kane, Pa., and will continue the business at the old stand. Mr. Crowell's connection with the retail Hardware business dates from 1886, when he became associated with R. L. Nesbit, at Dillsburg, Pa., under the style of Nesbit & Crowell, continuing until October, 1893, when he sold out to Mr. Nesbit. The partnership with Mr. Grant was formed in January, 1895.

The Eagle Lawn Mower.

The lawn mower illustrated herewith, manufactured by the Philadelphia Lawn Mower Company, 3107-9 Chestnut street, Philadelphia, is claimed to present advantages and improvements. The mower is made in sizes of 30, 35, 40 and 42 inches, from entirely new patterns, with added weight of iron to give strength, increased diameter for draft, large shafting and journals for durability, and $7\frac{1}{4}$ inches in diameter cutting cylinder for high grass. Patent adjustable boxes are provided, being designed to



The Eagle Lawn Mower.

take up the wear of journals. The front and back girths are made of wrought iron, making the mower frame solid. A distinct improvement over anything of its kind is the clutch on this mower. The clutch is on the left hand side of the machine, on the roller shaft, and is operated by a lever device, which can be moved with the foot without leaving the seat. This lever controls the connection between the clutch and the gears, a forward movement of the lever throwing off the connection, allowing the mower to be moved without operating the knives.

The cutting cylinder of the machine is stationary and the bed knife is adjustable. The best oil tempered steel is used in the construction of the knives, and all material entering into the machine is of the best quality. No reduction is made for seat and shafts, as the mower will perform better work with them than without. The company manufacture and assemble all parts of the mowers in their own buildings. The mower has been thoroughly tested and is guaranteed to give entire satisfaction by the manufacturers.

The 1900 Solar Acetylene Gas Bicycle Lamp.

The Badger Brass Company, Kenosha, Wis., are placing on the market their new Solar acetylene gas bicycle lamp for the coming season. While the 1899 Solar was a perfectly satisfactory lamp, the one brought out for this



The 1900 Solar Acetylene Gas Bicycle Lamp.

season has a few improvements. The shape of the carbide pot has been changed, and the sides are now parallel. A false bottom has been added, which, when removed, takes with it all the slacked carbide and leaves the pot

perfectly clean. The new bracket is made of sheet steel instead of castings. The lens is held in place by a patent snap fastening instead of the wire as heretofore. The system of generation, which is a special feature of the Solar lamp, has not been changed. The real secret of the satisfactory operation of this lamp is the water feeding through a wick, which is thoroughly covered by patents. The new lamp is referred to as being beautiful in shape, and the large sized jewels make it very attractive. The company began the manufacture of the lamp in 1897, since which time their sales have increased

rapidly. Their English and Continental business has also become extensive. Large contracts have been made for this season's lamp with Eastern jobbers, as well as with jobbers in the Central and Western States.

The New Aspinwall Double Action Churn.

The accompanying cut represents a new double action, wooden frame churn, put on the market by the Aspinwall Mfg. Company, Jackson, Mich. The action of the churn, instead of being purely rotary, has an oscillation from side to side, to increase the churning or



The New Aspinwall Double Action Churn.

stirring action of the cream. The frame is constructed with a platform for the operator to stand on, and secures the churn more rigidly in position. The combination of these features, it is pointed out, aids very much in rapid butter making. The churn can be wheeled about at pleasure, being mounted on small truck wheels inside the frame base. The barrel is attached to the frame by a simple device. The manufacturers state that there are no projections to catch sediment; that the churn is easily cleaned and does not become foul; that it is simple in construction, with no cranks to turn; that so little strength is required a child can operate it, and that it makes a creamery grade of butter. The churn is, in a measure, taking the place of the double lever Aspinwall churn, which is, however, still made by the company.

The New Century Sprayer.

The accompanying cut represents a sprayer put on the market this year by the Deming Company, Salem, Ohio. The sprayer is provided with the company's automatic



The New Century Sprayer.

agitator, brass ball valves, brass valve seat, brass cylinder, brass plunger and their new indestructible plunger packing. The air chamber is referred to as being large and effective, and the sprayer as needing no priming, as the cylinder is submerged.

The Aspinwall Post Hole Digger.

The Aspinwall Mfg. Company, Jackson, Mich., are offering a post hole digger, as shown in the accompanying cuts. The head contains three knives, plow shaped in their cutting parts, which are hinged to open and close. When in a closed position a small clutch is moved downward, covering the head and holding the blades or knives in that position. In use it is explained the plow shaped mold board knives or blades crowd the earth and press it centrally, leaving the knives to cut freely upon the undug bottom and sides, which enables easy operation and clean work, the earth being sufficiently packed, when the digger is filled, for removal and dumping.



The Aspinwall Post Hole Digger.

Upon removal from the hole the clutch is pulled upward with the left hand, when the blades open for discharge by the gravitation of the earth. The narrowness of the blades and the freedom of action, it is explained, always prevent clogging or gumming. The manufacturers call attention to the following points of excellence: That the digger works successfully in hard or soft ground, sand or gravel, sticky clay soil, through stiff sod, small roots, &c.; that, owing to the ease with which the digger is operated, no back breaking work is required; that the hole is dug perfectly clean, while the sod is left in place at the top, preventing the post being swayed out of line by the wind, as in the instance of a board fence, or by the expansion or contraction of a wire fence; that between 200 and 300 holes can be dug per day; that it will dig holes at any required depth, also at an angle for braces; that when boring into the ground it is not necessary to bear down hard, jab, pry or break the sod with a spade, and that after light pressure in starting, it works on the same principle as an auger—simply keep

twisting or turning it around. The digger is spoken of as being made of the best material, and the construction as simple, effective and durable.

The Gem Oiler.

The Gem Mfg. Company, Pittsburgh, Pa., are offering the Gem oiler, as shown herewith.

The oiler bottom is constructed from high carbon spring steel. The body from best graded of basic low phosphorus steel pressed and drop forged into shape, flared and spun firmly against bottom proper. It is



Fig. 1.—The Gem Oiler.

pointed out that this process secures 50 per cent. greater strength to the can and permits 95 per cent. of the product to leave machines proof against leakage. The oilers are all brazed upon the inside to further strengthen the cans and guarantee against leakage. The spout is made of same material, shaped to prevent excessive oil flow.

It is explained that if can is dropped directly upon point the spring acts as a recoil, taking up force of im-

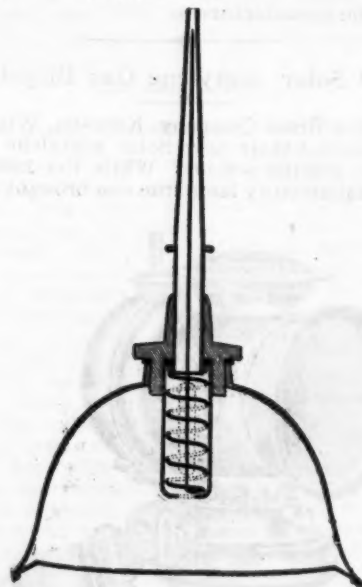


Fig. 2.—Sectional View of Gem Oiler.

pact. The cage is referred to as being strongly built of brass, allowing a free flow of oil while providing a sturdy base for the spring plunger action. The dirt ejecting device, which is the oiler's especial feature, is made of piano wire, and will last, it is stated, almost a lifetime. The mechanism is alluded to as free and simple, and every part readily replaced and interchangeable. To eject dirt or other clogging substance from the spout a firm but easy pressure downward upon the copper ring is given to assure the automatic action of the plunger.

Current Hardware Prices.

REVISED MARCH 6, 1900.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer, are printed in *Italics*, and the prices named represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. They apply to such quantities of goods as are usually purchased by retail merchants. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Cut Prices.—In the present condition of the market, while many advanced prices are announced by the manufacturers, lower prices are often made by the wholesale trade who have stocks on hand purchased at former quotations.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE INDEX SUPPLEMENT (April 6, 1899), which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters Blind—

Domestic, 7 doz. \$3.00... 33 1/2 @ 33 1/2 105
North's... 105
Zimmerman's—See Fasteners, Blind.

Window Stop—

Ives' Patent... 25 1/2 25 1/2
Taplin's Perfection... 50 1/2

Ammunition—See Caps, Cartridges, Shells, &c.

Anvils—American—

Eagle Anvils... 7 1/2 @ 7 1/2 70
Hay-Budden, Wrought... 9 @ 9 90
Horsehoe brand, Wrought... 9 1/2 @ 9 1/2 90
Samson... 7 1/2 @ 7 1/2 70
Trenton, Wrought... 7 1/2 @ 7 1/2 70

Imported—

Armstrong's Mouse Hole... 6 1/2 @ 6 1/2 60
Peter Wright's... 9 1/2 @ 9 1/2 90

Anvil, Vise and Drill—

Millers Falls Co., \$18.00... 20 1/2

Apple Parers—See Parers, Apple, &c.

Augers and Bits—

Common Double Spur... 60 @ 10 @ 10 105
Boring Machine Augers... 60 @ 10 @ 10 105

Car Bits, 12-in. twist... 60 @ 10 @ 10 105
Jennings' Pattern: Auger Bits... 60 @ 10 @ 10 105

Ford's Auger and Car Bits... 40 @ 10 @ 10 105

Forster Pat. Auger Bits... 40 @ 10 @ 10 105

O. & Jennings & Co.: No. 10 ext. lip. R. Jennings' list... 40 @ 10 @ 10 105

No. 30, R. Jennings' list... 50 @ 10 @ 10 105

Russell Jennings'... 25 @ 10 @ 10 105

L'Hommedieu Car Bits... 15 @ 10 @ 10 105

Pugh's Black... 30 1/2

Pugh's Jennings' Pattern... 35 1/2

Snell's Auger Bits... 50 1/2

Snell's Bell Hangers... 50 1/2

Snell's Car Bits, 12-in. twist... 60 1/2

Wright's Jennings Bits (R. Jennings' list)... 50 1/2

Bit Stock Drills—

Standard list... 65 @ 10 @ 10 70 1/2

Expansive Bits—

Clark's small, 1 1/8; large, 3/8... 50 @ 10 1/2

Lavigne's Clark's Pattern, No. 1... 50 @ 10 1/2

Star's No. 1, 3/8; No. 2, 1/2... 40 @ 10 1/2

Swan's... 50 1/2

Gimlet Bits—

Common Double Out, gro... 35 1/2 @ 5 1/2 50 1/2

German Pattern... 35 1/2 @ 5 1/2 50 1/2

Double Out, makers' lists... 50 @ 5 1/2 50 1/2

Hollow Augers—

Ames... 25 @ 10 1/2

Bonney's Adjustable, 7 doz... 15 @ 10 1/2

New Patent... 25 @ 10 1/2

Universal... 20 1/2

Ship Augers and Bits—

Ford's... 40 1/2

Snell's... 40 1/2

L'Hommedieu's... 15 @ 10 @ 10 105

Watrous's... 40 @ 10 1/2

Awl Hafts, See Hafts, Awl.

Awls—

Brad Awls: Handled... gro. 35 1/2 @ 3 1/2 30 1/2

Unhandled, Shouldered gro... 65 @ 28 1/2

Unhandled, Patent... gro. 65 @ 70 1/2

Reg Awls: Unhandled, Patent... gro. 31 @ 3 1/2

Unhandled, Shouldered gro... 65 @ 70 1/2

Scratch Awls: Handled, Common... gro. 35 1/2 @ 4 1/2

Handled, Socket... gro. 31 1/2 @ 12 1/2

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

First Quality, best brands... 55 @ 25 @ 6 50 1/2

First Quality, other brands... 55 @ 25 @ 6 50 1/2

Jobbers' Special Brands: Good Quality... 55 @ 25 @ 6 50 1/2

Best Quality... 55 @ 25 @ 6 50 1/2

Cheap, Handled Axes... 55 @ 25 @ 6 50 1/2

Beveled, add 25c doz.

Axle Grease—See Grease, Axle.

Axles—

Concord, loose collar... 5 1/2 @ 6 1/2 60 1/2

Concord, solid collar... 5 1/2 @ 6 1/2 60 1/2

No. 1 Common... 5 1/2 @ 6 1/2 60 1/2

No. 1 1/2 Com. New Style... 5 1/2 @ 6 1/2 60 1/2

No. 2, Solid Collar... 5 1/2 @ 6 1/2 60 1/2

Nos. 7, 8, 11 to 14... 50 @ 10 1/2

Nos. 7, 8, 11 to 14, 100 sets... 60 1/2

Nos. 15 to 18... 60 1/2

Nos. 19 to 22... 60 @ 10 1/2

Boxes, Axle—

Common and Concord, not turned... 15, 50

Common and Concord, turned... 15, 50

Half Patent... 15, 50

Balances—

Caldwell new list... 50 1/2

Fullman's... 60 1/2

Spring—

Spring Balances... 60 @ 50 @ 55 1/2

Chatillon's Light Spz. Balances... 40 @ 10 1/2

Chatillon Straight Balances... 40 1/2

Chatillon Circular Balances... 50 1/2

Chatillon's Large Dial... 30 1/2

Barb Wire—See Wire, Barb.

Bars—

Steel Crowbars, 10 to 40 lb., per lb... 4 @ 1 1/2 40

Beams, Scale—

Scale Beams, List Jan. 12, '98... 30 @ 30 @ 25 1/2

Chatillon's No. 1... 30 1/2

Chatillon's No. 2... 40 1/2

Beaters—

Standard Co.: No. 5 Steel Handle Dover... gro. 35 1/2

No. 10 Cast Handle Dover... gro. 38 1/2

No. 10 Steel Handle Dover... gro. 38 1/2

No. 15 Extra Heavy Steel Handle... gro. 41 1/2

Rival, 7 gro... 10 1/2

Taplin Mfg. Co.: No. 50 Small Family size... 35 1/2

No. 100 Regular Family size... 35 1/2

No. 102 Regular Family size, tinned... 35 1/2

No. 150 Large Family size... 35 1/2

No. 152 Large Family size, tinned... 35 1/2

Lyon's, Standard size... 35 1/2

Wunder (S. S. & Co.)... 35 1/2

Bellows—

Blacksmith—Standard list... 70 @ 70 @ 55 1/2

Inch... 30 35 40 45 50 55 60

Each... 35 1/2 40 45 50 55 60 65

Extra Length: Each... 45 1/2 50 55 60 65 70 75

Molders—

Inch... 9 10 11 12 13 14 16

Doz... 35 1/2 38 1/2 41 1/2 44 1/2 47 1/2 50 1/2

Hand—

Inch... 6 7 8 9 10 12

Doz... 35 1/2 38 1/2 41 1/2 44 1/2 47 1/2 50 1/2

Bells—

Ordinary goods... 75 @ 10 1/2

High grade... 70 @ 70 @ 10 1/2

Jersey... 75 @ 75 @ 10 1/2

Texas Star... 50 @ 10 1/2

Door—

Gong, Yankee... 55 1/2

Home, R. & E. Mfg. Co.'s... 50 @ 10 1/2

Lever and Pull, Sargent's... 38 1/2 @ 10 1/2

Hand—

Hand Bell, Polished... 65 @ 55 @ 10 1/2

White Metal... 65 @ 55 @ 10 1/2

Nickel Plated... 50 @ 50 @ 10 1/2

Swiss... 50 @ 50 @ 10 1/2

Miscellaneous—

Farm Bell... 10, 15 @ 2 1/2 10 1/2

Steel Alloy Church and School... 60 @ 10 @ 10 1/2

Wilmot & Hobbs Mfg. Co., Gong... 70 1/2

Belting

Rubber—Common Standard... 70 @ 10 @ 75 1/2

Standard... 60 @ 10 @ 70 1/2

Extra... 60 @ 10 @ 70 1/2

High Grade... 60 @ 10 @ 70 1/2

Leather—

Extra Heavy, Short Lap... 50 @ 10 @ 50 1/2

Regular Short Lap... 50 @ 10 @ 50 1/2

Standard... 60 @ 10 @ 60 1/2

Light Standard... 70 1/2

Cotton—

Rosendale-Reddaway R. & H. Co.: Sphinx B and... 60 @ 10 1/2

Durable Brand... 70 1/2

Bench Stops—See Stops, Bench

Benders and Upsetters, Tire—

Green River Tire Benders and Upsetters... 30 1/2

Ill. Iron & Bolt Co... 40 @ 10 1/2

Stoddard's Lightning Tire Upsetters... 40 @ 50 1/2

Bicycle Goods—

Lane's Cycle Hanger... 33 1/2 @ 35 1/2

John S. Lang's Son's 1899 list: Chain... 50 1/2

Parts... 50 1/2

Spokes... 50 1/2

Tubes... 60 1/2

Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See Augers and Bits.

Bit Holders—See Holders.

Blind Adjusters—See Adjusters, Blind.

Blind Fasteners—See Fasteners, Blind.

Blind Staples—See Staples, Blind.

Blocks—Tackle—

Common Wooden... 70 @ 70 @ 10 1/2

Cleave and Steel... 50 @ 10 @ 60 1/2

Eddy's Steel... 60 @ 10 1/2

Harts Steel... 50 @ 10 1/2

Ford's Star Brand Self Lubricating... 60 @ 10 1/2

Hollow Steel, Ford's Pat. Star Brand... 50 @ 10 1/2

Lane's Patent Automatic Look and Junior... 30 1/2

Stowell's Novelty, Mal. Iron... 50 1/2

See also Machines, Hoisting.

Boards, Stove—

1899 List: Zinc... 30 @ 35 1/2

Crystal and Embossed... 40 1/2

Boils—

Carriage, Machine, &c.—

Common, list Jan. 30, '98... 45 @ 55 @ 60 1/2

Norway Iron, \$3.00, list Oct. 7, '94... 75 @ 75 @ 10 1/2

Phila. Eagle, \$3.00 list May 24, '99... 75 @ 10 @ 75 1/2

Boil Ends, list Jan. 30, '98... 50 @ 55 @ 60 1/2

Machine, list Oct. 1, '99... 50 @ 55 @ 60 1/2

Note.—Jobbers' prices on Boils are now generally lower than manufacturers'.

Door and Shutter—

Cast Iron Barrel, Round Brass Knob:

Inch... 3 4 5 6 8

Per doz... 30 35 40 45 50 55

Cast Iron Spring Foot:

Inch... 6 8 10

Per doz... 15 15 15 15 15 15

Cast Iron Chain, Flat, Japanned:

Inch... 6 8 10

Per doz... 30 35 40 45 50 55

Cast Iron Shutter, Brass Knobs:

Inch... 6 8 10

Per doz... 30 35 40 45 50 55

Wrought Barrel Brass Knob:

Inch... 3 4 5 6 8

Per doz... 30 35 40 45 50 55

Wrought Barrel... 70 @ 10 @ 75 1/2

Wrought Flush B. K... 50 @ 10 @ 50 1/2

Wrought Shutter... 50 @ 10 @ 50 1/2

Wrought Square Neck... 50 @ 10 @ 50 1/2

Wrought Sunk... 50 @ 10 @ 50 1/2

Ives' Patent Door... 60 @ 10 @ 60 1/2

Flow... 50 @ 10 @ 60 1/2

Stove and Plow—

Common... 57 @ 57 @ 10 1/2

B. L. Caps (Sturtevant Shells)	\$1.00
All other primers	\$1.10 @ \$1.12
Carpet Stretchers— See Stretchers, Carpet.	
Cartridges—	
B. B. Caps, Con., Ball Sgd.	\$1.30
B. B. Caps, Round Ball	\$1.12 @ \$1.13
Blank Cartridges:	
33 C. F., \$5.50	10¢55
33 C. F., \$7.00	10¢55
22 cal. Rim., \$1.50	10¢55
22 cal. Rim., \$2.75	10¢55
Central Fire	35¢
Pistol and Rifle	15¢55
Primed Shells and Bullets	15¢55
Rim Fire Sporting	50¢
Rim Fire Military	15¢55
Casters—	
Bed	60¢10¢
Plat	60¢10¢
Plate, part Brass	60¢10¢
Philadelphia	60¢10¢
Boas	70¢10¢
Pass n. Friction	70¢10¢
Martin's Patent (Phoenix)	45¢
Payson's Anti-Friction Furniture	70¢10¢
Payson's Anti-Friction Truck	70¢10¢
Standard Ball Bearing	45¢
Tucker's Patent, low list	30¢
Cattle Loaders— See Loaders, Cattle.	
Chain—	
American Coil, Full Casks:	
3-16 1/4 5-16 3/4 7-16 1/4 9-16	
8-75 6-85 5-85 5-00 4-85 4-75 4-65	
1/4 1/2 1 inch	
4-55 4-0 4-10 4-10 cents per lb.	
Less than Cask lots add 1/4¢ per lb.	
German Coil, list July 24, '97	60¢10¢ @ 60¢10¢10¢
German Hatter Chain, list July 24, '97	60¢10¢ @ 60¢10¢10¢
Trace, Wagon and Fancy Chains	list April, '98, 50¢10¢ @ 50¢10¢10¢
Jack Chain, list July 10, '93:	
Iron	50¢5 @ 60¢
Brass	60¢5 @ 60¢
Gal. Pump Chain	lb. 5¢ @ 5¢4
Breast, Hitching and Rein Chains	
Covert Sd. Works	50¢
Covert Mfg. Co.:	
Breast	35¢2¢
Halter	35¢2¢
Heel	35¢2¢
Hein	35¢2¢
Stallion	35¢2¢
One da Community:	
Eureka Coil and Halter	60¢ @ 40¢5
Niazra Coil and Halter	60¢ @ 40¢5
Niazra Cow Ties	45¢ @ 45¢10¢5
Am. Owl and Halters	50¢10¢ @ 50¢
Am. Cow Ties	35¢ @ 40¢5
Wire Goods Co.:	
Dog Chain	60¢
Universal Dbl-Jointed Chain	45¢
Chalk—(From Jobbers.)	
Carpenters', Blue	gro. 45¢
Carpenters', Red	gro. 35¢
Carpenters', White	gro. 30¢
See also Crayons.	
Chalk Lines—See Lines.	
Checks, Door—	
Bardsley's	40¢10¢
Columbia	60¢10¢
Eclipse	80¢ @ 60¢10¢
Chisels—	
Socket Framing and Firmer	
Standard List	70¢5 @ 70¢10¢5
Buck Bros.	30¢
Charles Buck	30¢
Swan	70¢10¢ @ 70¢
L. & L. J. White	30¢ @ 30¢5
Tanged—	
Tanged Firmer	40¢5 @ 40¢10¢
Buck Bros.	30¢
Charles Buck	30¢
L. & L. J. White, Tanged	25¢5
Cold—	
Cold Chisels, good quality lb. 1 1/2 @ 16¢	
Cold Chisels, fair quality	lb. 12¢
Cold Chisels, ordinary	lb. 8¢ @ 9¢
Chucks—	
Beach Pat., each \$5.00	20¢
Skinner Patent Chucks:	
Combination Lathe Chucks	40¢
Drill Chucks, Patent & d. standard	30¢
Drill Chucks, New Model	2¢
Independent Lathe Chucks	40¢
Improved Planer Chucks	30¢
Universal Lathe Chucks	40¢
Face Plate Jaws	35¢
Union Mfg. Co.:	
Combination	40¢
Car Drill	30¢
Geared Scroll	30¢
Independent	30¢
Union Drill	30¢
Universal	40¢
Face Plate Jaws	35¢
Clamps—	
Adjustable, Hammers	20¢ @ 20¢5
Adjustable, Steepers	30¢
Cabinet, Sargent's	45¢10¢
Carriage Makers', P. S. & W. Co.	40¢10¢
Carriage Makers', Sargent's	50¢10¢
Best, Paralt	35¢ @ 10¢
Lineman's, Uca Drop Forge & Tool Co.	40¢
Saw Clamps, see Files, Saw Filers.	
Cleaners, Walk—	
Star Socket, All Steel	40¢ @ 40¢ net
Star Shank, All Steel	40¢ @ 40¢ net
Cleavers, Butchers—	
Foster Bros.	30¢
New Havea Edge Tool Co.'s	40¢ @ 40¢5
Nichols Bros., Flat hdl., 30¢; Rd. hdl., 40¢	
Payette R. Plumb	35¢
P. S. & W.	35¢ @ 35¢10¢
L. J. White	30¢
Clippers—	
Chicago Flexible Shaft Company	
Handy Toilet	40¢ @ 40¢

Mascotte Toilet	40¢ doz. \$3.40
Monitor Toilet	40¢ doz. \$3.00
Stewart's Patent	40¢ doz. \$3.00
Clips, Axle—	
Eagle and Superior 1/4 and 5-16 inch	65¢10¢ @ 70¢
Norway, 1/4 and 5-16 inch	65¢ @ 65¢5
Cloth and Netting, Wire— See Wire, etc.	
Cocks, Brass—	
Hardware list (Globe, Kerosene, Lever Bibbs, Racking, etc.)	60¢10¢ @ 60¢10¢10¢
Coffee Mills—See Mills, Coffee.	
Collars Dog—	
Brass, Pope & Stevens' list	40¢
Embossed, Gilt, Pope & Stevens' list	40¢10¢
Leather, Pope & Stevens' list	40¢
Compasses, Dividers, &c.	
Ordinary Goods	70¢10¢ @ 75¢
Bemis & Call Hdw. & Tool Co.:	
Dividers	65¢
Calipers, Call's Patent inside	55¢
Calipers, Double	65¢
Calipers, Inside or Outside	65¢
Calipers, Wing	60¢
Compasses	50¢
J. Stevens A. & T. Co.	55¢10¢
Conductor Pipe, Galvanized—	
Territory	Carload. L. C. L.
Eastern	60¢25¢ @ 60¢25¢
Central	60¢25¢ @ 60¢17¢
Southern	60¢25¢ @ 60¢15¢
S. Western	60¢25¢ @ 60¢12¢
Terms 25 for cash.	
See also Eave Trough.	
Coolers, Water—	
S. S. & Co.:	2-gal., \$14.00; 3-gal., \$16.00; 4-gal., \$18.50; 6-gal., \$23.00.
Coopers' Tools— See Tools, Coopers'.	
Cord—	
Sash—	
Braided, Drab	lb. 2¢ @ 25¢
Braided, White, Common	lb. 10¢ @ 15¢
Cable Laid Italian	lb. A, 18¢; B, 16¢
Common India	lb. 8¢ @ 9¢
Cotton Sash Cord, Twisted	lb. 1¢ @ 16¢
Patent Russia	lb. 12¢ @ 13¢
Cable Laid Russia	lb. 12¢ @ 13¢
India Hemp, Braided	lb. 11¢ @ 15¢
India Hemp	lb. 10¢ @ 12¢
Patent India	lb. 10¢ @ 12¢
Pearl Braided, cotton	lb. 10¢ @ 12¢
Massachusetts, White	lb. 10¢ @ 12¢
Edgystone Braided Cotton	lb. 10¢ @ 12¢
Harmony Cable Laid Italian	lb. 15¢
Ossawa Mills:	
Crown, Solid Braided White	lb. 18¢
Braided, Giant, White	lb. 17¢
Feetless:	
Cable Laid Italian	lb. 16¢
Cable Laid Russian	lb. 14¢
Cable Laid India	lb. 12¢
Braided India	lb. 12¢
Phoenix, White	lb. 10¢
Samson:	
Braided, Drab Cotton	lb. 32¢
Braided, Italian Hemp	lb. 32¢
Braided, Linen	lb. 40¢
Braided, White Cotton, Spot	lb. 28¢
Silver Lake:	
A quality, Drab, 40¢	15¢
A quality, White, 35¢	15¢
B quality, Drab, 35¢	15¢
B quality, White, 30¢	15¢
Italian Hemp, 40¢	15¢
Linen, 57¢	15¢
Wire, Picture—	
Braided or Twisted	70¢ @ 70¢5
Corn Knives and Cutters— See Knives, Corn.	
Crackers, Nut—	
Little Int.	gr. \$24.00
Turner & Seymour Mfg. Co.	50¢
Cradles—	
Grain	50¢
Crayons—	
White Round Crayons, gross	5¢ @ 6¢
Cases, 100 gro., \$4.50 @ \$5.00, at factory.	
Metal Workers' Crayons, gr. \$2.50	
Soapstone Pencils, round, flat or square	gr. \$1.50
Rolling Mill Crayons	gr. \$2.50
Ra Iron Crayons (composition)	gr. \$2.00
See also Chalk.	
Creamery Pails—See Pails.	
Creamery	
Crooks, Shepherds—	
Fort Madison, Heavy	40¢ doz. \$7.00
Fort Madison, Light	40¢ doz. \$6.50
Crow Bars—See Bars, Crow.	
Cultivators—	
Victor Garden	40¢ doz. \$10.00
Cutters—	
Glass—	
Smith & Hemlinway Co.	30¢
Meat—	
American	30¢
Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	
Each	\$5 \$7 \$10 \$25 \$50 \$60
Connecticut:	
Nos. 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	
Each	\$1.75 \$2.25 \$3.00 \$4.00 \$5.00
Enterprise	25¢ @ 25¢75¢
Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	
Each	\$2 \$3 \$2.50 \$4 \$5
Dixon's, 4 doz.	35¢ @ 40¢
Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	
Each	\$14.00 \$17.00 \$19.00 \$30.00
Hale's, 4 doz.	60¢ @ 60¢10¢70¢
Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	
Each	\$27.00 \$32.00 \$35.00 \$45.00
Home No. 1, 4 doz.	\$28.00
Little Giant, 4 doz.	35¢ @ 35¢25¢
Nos. 305, 310, 312, 340, 392	
Each	\$35.00 \$45.00 \$44.00 \$75.00 \$98.00

Miles' Challenge, 4 doz.	45¢ @ 45¢10¢
Nos.	1 2 3
Each	\$22.00 \$30.00 \$40.00
New Triumph No. 605, 4 doz.	\$24.00
Woodruff's, 4 doz.	33¢ @ 35¢
Nos.	100 150
Each	\$15.00 \$18.00
Chadborn's Smoked Beef Cutter	60¢ doz.
Enterprise Beef Shavers	25¢ @ 30¢
Slaw and Kraut—	
Henry Dias on & Son's:	
Slaw, C. Rn Grater, 20	40¢
Kraut Cutters 24 x 7, 26 x 8, 30 x 9, 35	40¢
Kraut Cutters 24 x 12, 40 x 12	40¢
Tucker & Dorsey Mfg. Co.:	
Kraut Cutters	40¢
Slaw Cutters, 1 Knife, 4 gr.	\$15 @ 20
Slaw Cutters, 2 Knife, 4 gr.	\$22 @ 30
Tobacco—	
All Iron, Cheap	40¢ @ 40¢10¢
Enterprise	35¢ @ 30¢
National, 4 doz.	\$21.00
Sargent's, 4 doz.	\$24.00
Appleton's, 4 doz.	\$16.00
Bonney's	60¢ @ 60¢10¢10¢
Washer—	
Appleton's, 4 doz.	\$16.00
Bonney's	60¢ @ 60¢10¢10¢
Diggers, Post Hole, &c.—	
Dalbey P. at Hole Auger, per doz.	\$10.00
Iwan's Improved Post Hole Auger	40¢
Iwan's Perfection Post Hole Digger	40¢
Never-Break Post Hole Digger, 4 doz.	\$10.00
\$24.00	
Samson, 4 doz.	\$34.00
Dividers—See Compasses.	
Dog Collars—See Collars, Dog.	
Door Checks— See Checks, Door.	
Door Springs— See Springs, Door.	
Drawers, Money—	
Tucker's Pat. Alar a Toll No. 1, 4 doz.	\$18; No. 2, \$15; No. 3, \$14; No. 4, \$13.
Drawing Knives— See Knives, Drawing.	
Drills and Drill Stocks—	
Common Blacksmiths' Drill, each	\$1.75 @ \$2.00
Blacksmiths' Self-feeding	\$3.75 @ 4.00
Bench Drills, Stearns	50¢
Breast, Millers Falls, each	\$3.00 15¢10¢
Breast, P. S. & W.	30¢ @ 30¢10¢
Goodell Automatic Drills	40¢ @ 40¢10¢
Ratchet, Curtis & Curtis	25¢
Ratchet, Parker's	40¢
Ratchet, Weston's	30¢ @ 25¢
Ratchet, Whitney's, P. S. & W.	40¢10¢
Whitney's Hand Drill, No. 1, \$10.00	
Adjustable, No. 10, \$12.00	33¢
Twist Drills—	
Standard List	65¢5 @ 65¢10¢5
Drill Bits or Bit Stock	
Drills—See Augers and Bits.	
Drill Chucks—See Chucks.	
Dripping Pans— See Pans, Dripping.	
Drivers, Screw—	
Balsey's Screw Holder and Driver, 4 doz.	25¢-inch, \$5; 4-in., \$7.50 4-in., \$9.00
Buck Bros.	30¢
Buck Bros' Screw Driver Bits	37¢
Champion	40¢10¢
Douglas Mfg. Co.	20¢ @ 20¢10¢
Fray's Hol. R'dle Sets, No. 3, \$12.00	50¢
Gay & Parsons' Ratchet	35¢
Goodell's Automatic	50¢10¢ @ 50¢10¢10¢5
Mayhew's Black Handle	50¢
Mayhew's Monarch	45¢10¢
New England Specialty Co.	50¢10¢
Sargent & Co's:	
Nos. 1, 50, 55 and 60, 50¢10¢ @ 50¢10¢15	
Nos. 20 and 40	60¢ @ 60¢10¢
Screw Driver Bits	40¢ doz. 50¢70¢
Stanley's J. & L. Co's:	
No. 64, Varnished Handles	40¢10¢
No. 80	70¢10¢
Swan's:	
Nos. 65 to 68	50¢
Nos. 20, 25 and 45	40¢10¢
Nos. 25, 35 and 45	30¢ @ 10¢10¢
Eave Trough, Galvanized	
Territory	Carload. L. C. L.
Eastern	75¢15¢
Central	75¢12¢ @ 75¢7¢
Southern	75¢10¢
S. Western	75¢2¢ @ 75¢
Terms 25 for cash.	
See also Conductor Pipe.	
Egg Beaters—See Beaters, Egg.	
Egg Openers— See Openers, Egg.	
Emery—Nos. 1 to 5 to Flour, CF	
45 gro. 1.80 gro. F.F.F.	
Kegs	lb. 45¢ 5 c 5 c
4 Kegs	lb. 45¢ 5 c 5 c
4 Kegs	lb. 5 c 5 c 5 c
10-lb cans, 10	
In case	6 c 6 c 5 c
10-lb cans, less	
than 10	10 c 10 c 8 c
Enameled and Tinned Ware—See Ware, Hollow.	
Escutcheon Pins— See Pins, Escutcheon.	

Extractors, Lemon Juice—
—See Squeezers, Lemon.

Fasteners, Blind—
Zimmerman's 50¢10¢

Faucets—
Cork Lined..... 70¢5 @ 70¢10¢5
Metallic Key, Leather Lined..... 70¢ @ 70¢10
Red Cedar..... 50¢ @ 50¢5
B. & L. B. Co.:
West's Lock, Open and Shut Key 50¢10¢
John Sommer's Peerless Tin Key 40¢
John Sommer's Boss Tin Key 50¢
John Sommer's Victor Metal Key 50¢10¢
John Sommer's Duplex Metal Key..... 40¢
John Sommer's Diamond Lock..... 40¢
John Sommer's L. X. L. Cork Lined..... 50¢
John Sommer's Reliable Cork Lined..... 50¢10¢
John Sommer's Common Cork Lined 70¢
John Sommer's Chicago Cork Lined..... 60¢
John Sommer's O. K. Cork Lined..... 30¢
John Sommer's Perfection Cedar..... 40¢
Star..... 60¢ @ 60¢5
Star, Metal Plug new list..... 40¢ @ 40¢5
Lockport, Metal Plug, reduced list. 60¢5
Self Measuring:
Enterprise, 4 doz. \$36.00 40¢
Lane's, 4 doz. \$36.00 53¢
National Measuring, 4 doz. \$36.00..... 40¢

Felloe Plates—
See Plates, Felloe.

Files—Domestic—
List revised Nov. 1, 1899.
Best Brands..... 70¢ @ 75¢
Good Brands..... 75¢ @ 75¢10¢10¢
Fair Brands..... 75¢ @ 75¢10¢ @ 80¢5
Second Quality..... 80¢ @ 10¢ @ 80¢25¢

Imported—
Stubs' Tapers, Stubs' list, July 24, '97..... 25¢

Fixtures, Grindstone—
Net Prices:
Inch..... 15 17 19 21 23
Per doz. \$3.30 3 55 3 75 4 50 5 25
Stowell's Giant Grindstones Hanger..... 40¢ doz. \$6.00
Stowell's Grindstone Fixtures..... 50¢ @ 50¢10¢
P. S. & W. Co..... 50¢ @ 50¢10¢
Reading Hardware Co..... 30¢ @ 30¢10¢
Sargent's Patent..... 60¢10¢ @ 60¢10¢10¢

Fluting Machines—
See Machines, Fluting.

Fodder Squeezers—
See Squeezers, Fodder.

Forks—
Aug. 1, 1899, list.
Hay, 2 line..... 65¢
Hay, 3 line..... 65¢
Manure, 4 line..... 70¢
Manure, 5 and 6 line..... 70¢
Spading..... 70¢5
Iowa Dig-Ey Potatoes..... 65¢
Victor, Hay..... 70¢
Victor, Manure..... 70¢
Victor, Header..... 70¢12¢
Champion, Hay..... 60¢ @ 20¢
Champion, Manure..... 70¢5
Columbia, Hay..... 60¢ @ 20¢
Columbia, Manure..... 70¢
Columbia, Spading..... 70¢10¢
Hawkeye Wood Barley 4 line 4 doz. \$5.00; 6 line, \$6.00.
Plated.—See Spoons.

Frames—
Saw—
Red, Polished and Varnished, 4 doz. \$15 @ \$15
White..... doz. 75¢ @ 80¢

Screens and Frames—
See Screens.

Freezers, Ice Cream—
Qts. 2 3 4 6 8 10
Best, \$1.10 1 60 1 85 2 30 3 00 3 50
Good \$1 25 1 35 1 70 2 05 2 65 3 20
Fair, \$1 00 1 10 1 30 1 75 2 20 2 90

Fruit and Jelly Presses—
See Presses, Fruit and Jelly.

Fry Pans—See Pans, Fry.

Fuse—
Per 1000 Feet.
Hemp Fuse..... \$2.00
Cotton Fuse..... 2 90
Single Taped Fuse..... 3 50
Double Taped Fuse..... 4 70
Triple Taped Fuse..... 5 70

Gates, Molasses and Oil—
Stebbin's..... 80¢ @ 80¢10

Gauges—
Marking, Mortise, 65¢ & 11 @ 55¢10¢10
Barrett's Comb. Roller Gauge..... 40¢ doz. \$4.75 @ 5.25
Stanley R. & L. Co.'s Butt & Rabbit Gauge..... 20¢10
Wire, Brown & Sharpe's..... 25¢
Wire, Morse's..... 25¢
W. R. & W. Co..... 10¢10¢10

Gimlets—
Nail, Metal, Assorted, gro. \$1.40@1.75
Spike, Metal, Assorted, gro. \$3.00@3.50
Nail, Wood Handled, Assorted,
gro. \$4.00@4.50
Spike, Wood Handled, Assorted,
gro. \$5.00@5.25

Glass, American Window

List Nov. 18, 1898.
Small lots from store:
Single or Double.
Eastern, First Bracket.....85¢10¢
Eastern, All Other Brackets.....85¢20¢
From Jobbers or Factory, with Freight
Allowance, except in Eastern district:
Carloads, Single Strength.
First Bracket.....85¢25¢
Second and Third Brackets.....89¢
All Above.....90¢25¢
Carloads Double Strength
First Five Brackets.....89¢
60 inch Bracket.....90¢
70 to 100 inch Bracket, inclusive
90¢10¢5¢
All Above.....90¢25¢

Glue—Liquid, Fish—

List A, Bottles or Cans, with Brush.
37½¢50¢
List B, Cans (½ pts., pts., qts.)
33½¢45¢
List C, Cans (½ gal., gal.)
25¢15¢
Glue Pots—See Pots, Glue.
Grease, Axle—
Common Grade.....gro. \$5.00@6.00
Allerton's Axle:
10 Tin, ½ gr.....\$9.00
10 Tin, ½ doz., \$3.00; 5 doz., \$3.00;
10 doz., \$6.00.
10 doz., \$6.00.
Dixon's Everlasting.....10 doz., \$12.00
Dixon's Everlasting, in bxs., ½ doz. 1 doz.
\$1.20; 2 doz. \$2.00

Grindstone Fixtures—

See Fixtures, Grindstone.
Gun Powder—See Powder.
Hack Saws—See Saws.
Hatts, Awl—
gro.
Peg Patent, Leather Top.....\$4.90@5.25
Peg Patent, Plain Top.....\$3.50@3.75
Sewing, Brass Ferrule.....\$1.50@1.60
Saddlers' Brass Ferrule.....\$1.35@1.45
Peg, Common.....\$1.25@1.35
Brad, Common.....\$1.50@1.75

Halters and Ties—

Covert Mfg. Co., Web.....45¢25¢
Covert Mfg. Co., Jute Rope.....45¢25¢
Covert Mfg. Co., Sisal Rope.....30¢25¢
Covert's Saddlery Works, 98 list, W. D.....60¢10¢
Covert's Saddlery Works, Leather.....60¢10¢
Covert's Saddlery Works, Jute.....60¢10¢
Covert's Saddlery Works, Sisal.....60¢10¢
Covert's Saddlery Works, Manila.....60¢10¢
Covert's Saddlery Works, Cotton.....70¢

Hammers—

Handled Hammers—
Heller's Machinists.....40¢40¢5¢
Magnet Tack, Nos. 1, 2, 3, \$1.25, \$1.50,
\$1.75.
Fess. Stow & Wilcox.....40¢40¢5¢
Fayette H. Plumb:
Artisan's Choice, A. E. Nail.....33½¢25¢
Engineers' and B. S. Hand.....60¢10¢
Machinists' Hammers.....60¢10¢
A. E. & A. E., Bell Face Nail.....33½¢25¢
Riveting and Liners.....33½¢25¢
Sargent's C. S. New List.....45¢45¢10¢
Heavy Hammers and
Sledges—
1 lb. and under.....lb. 15¢
2 to 5 lb.....lb. 30¢ 70¢10¢75¢
Over 5 lb.....lb. 30¢
Note—Lower prices sometimes made
by jobbers.
Wilkinson's Smith's.....94¢10¢10¢

Handcuffs and Leg Irons

See Police Goods.
Handles—
Agricultural Tool Handles—
Box, Rake, Fork, etc.....50¢10¢60¢
Shovel, etc., Wood D Handle.....50¢50¢5¢
Cross-Cut Saw Handles—
Alkins.....40¢5¢
Champion.....45¢45¢10¢
Diston.....50¢

Mechanics' Tool Handles—

Auger, assorted.....gro. \$2.10@2.50
Auger, large.....\$2.35@2.50
Brad Axl.....gro. \$1.50@1.75
Chisel Handles:
Apple Tanged Firmer, gro. ass'd.
\$2.25@2.35; large, \$2.75@3.00.
Hickory Tanged Firmer, gro. ass'd.
\$1.75@2.25; large, \$2.35@2.50.
Apple Socket Firmer, gro. ass'd.
\$1.75@2.25; large, \$2.35@2.50.
Hickory Socket Firmer, gro. ass'd.
\$1.60@1.75; large, \$1.75@2.00.
Hickory Socket Framing, gro. ass'd.
\$2.50@2.75; large, \$3.25@3.50.
File, assorted.....gro. \$1.00@1.15
Hammer, Hatchet, Axe, etc.....50¢10¢
Hard Saw, Parished, doz. 75¢80¢
Not Parished.....50¢80¢
Plane Handles:
Jack, doz. 25¢25¢; Jack Bolted.....55¢80¢
Fore, doz. 35¢35¢; Fore, Bolted.....70¢75¢

Hangers—

Barn Door, New Pattern, Round
Groove, Regular:
Inch.....3 4 5 6 8
Doz.....\$1.10 1.50 1.80 2.10 2.75
Barn Door, New England Pattern,
Check Back, Round Groove, Regular:
Inch.....3 4 5 6
Doz.....\$1.50 2.00 2.50 3.00 3.25

Chicago Spring Butt Co.

Friction.....25¢
Oscillating.....25¢
Big Twin.....25¢
Chisholm & Moore Mfg. Co.:
Advance.....55¢
Cleveland.....60¢
Baggage Car Door.....50¢
Elevator.....40¢
Railroad.....55¢
Car Ball Bearing, ½ doz. pair \$4.50
No. 10 Roller Bearing, doz. pr. 5.50
No. 20 Roller Bearing, doz. pr. 4.50
Nickel.....55¢
J. G. O.....50¢25¢10¢

Lane Bros.:
Parlor, Standard.....40¢55¢25¢
Parlor, New Model.....40¢25¢
Barn Door, Standard.....60¢25¢
Covered.....50¢10¢10¢
Special.....60¢35¢
Lawrence Bros.:
Crown.....60¢
New York.....60¢
Sterling.....60¢

McKinney Mfg. Co.:
No. 2, Standard, \$18.....60¢10¢
No. 1, Special, \$13.....60¢10¢
Stowell Mfg. and Foundry Co.:
Badger.....60¢
Baggage Car Door.....39¢45¢
Climax Anti-Friction.....50¢
Elevator.....40¢
Interstate.....50¢10¢
Magic.....50¢
Matchless.....50¢10¢
Nansen.....50¢10¢
Parlor Door.....50¢
Railroad.....50¢10¢
Street Car Door.....50¢10¢
Steel, Nos. 300, 400, 500.....40¢15¢
Wild West.....50¢5¢
Zenith for Wood Track.....50¢10¢

Taylor & Boggus Foundry Co.:
Kidders.....50¢50¢10¢
Van Wagoner & Williams Hdw. Co.:
American Trackless.....39¢45¢10¢
Wilcox Mfg. Co.:
Bike Roller Bearing.....60¢10¢
C. J. Roller Bearing.....60¢10¢
Cycle Ball Bearing.....50¢
L. T. Roller Bearing.....60¢10¢
New Era.....50¢10¢
New Richards.....60¢
O. K. Roller Bearing.....60¢10¢5¢
Prindle Improved.....60¢10¢
Richards' Improved.....60¢10¢
Richards' Single Track.....50¢10¢
Wilcox Dwarf Roller Bearing.....40¢10¢

Wilcox-Ives.....60¢10¢
Wilcox Tandem Roller Bearing.....60¢10¢
Wilcox Trolley Ball Bearing.....60¢10¢
Wilcox Trolley Roller Bearing.....40¢
Wilcox Trolley Roller Bearing.....40¢10¢
Fire.....40¢10¢

Harness Menders—See Menders.

Harness Snaps—See Snaps.

Hasps—

McKinney's Perfect Hasp, ½ doz. \$1.10
40¢10¢
Wrought Hasps, Staples, &c.—See
Wrought Goods.

Hatchets—

Best Brands.....10¢10¢50¢
Cheaper Brands.....50¢40¢50¢10¢5¢
Note—Net prices often made.

Hay and Straw Knives—

See Knives.
Hinges—
Blind and Shutter Hinges—
Acme and Dixie Shutter:
No.....1 1½ 2 3 4
Doz. pair.....\$0.70 .85 .60 .53
Buffalo and Queen City Reversible
Shutter:
No.....1 1½ 2 3 4
Doz. pair.....\$0.70 .85 .60 .53
Lull & Porter Old Style Shutter:
No.....1 1½ 2 3 4
Doz. pair.....\$0.70 .85 .60 .53
1868 Old Pattern Blind Hinge:
No.....1 3 5
Doz. pair.....\$0.80 1.15 1.35
Parker.....70¢75¢
North's Automatic Blind Fixtures, No.
3, Wood, \$9.00; No. 3, for Brick,
\$11.50.....10¢
Reading's Gravity.....75¢10¢
Sargent's, Nos. 1, 3, 5.....60¢10¢
Sargent's, Nos. 11 & 13.....75¢10¢70¢10¢10¢

Wrightville Hdw. Co.

Acme, Lull & Porter.....65¢10¢5¢
Buffalo Gravity Looking, Nos. 1, 3
and 5.....65¢10¢10¢
Champion Gravity Looking, No. 75.75¢
1868, Old Pat'n, Nos. 1, 3 & 5.....75¢
Tip Pattern, Nos. 1, 3 and 5.....75¢
Double Looking, Nos. 20 and 25.....70¢
Empire, Nos. 101 and 103.....65¢10¢
Niagara Gravity Looking, Nos. 1, 3
and 5.....65¢10¢10¢
Noiseless, Nos. 50, 60, 65 and 55.....65¢10¢5¢
O. S. Lull & Porter.....65¢10¢10¢
Pioneer, No. 060, 45 and 55.....65¢10¢5¢
Steamboat Gravity Looking, No. 10.....75¢
Stanley's Steel Gravity Blind Hinges,
½ doz. sets \$1.30.....20¢10¢

Gate Hinges—

Clark's or Shepard's—Doz. sets:
No.....1 2 3
Hinges with Latches.....\$1.90 2.50 4.25
Hinges only.....1.30 1.55 3.30
Latches only.....0.70 0.70 1.30
New England:
With Latch.....doz. \$1.75@1.80
Without Latch.....doz. \$1.40@1.45
Reversible Self-Closing:
With Latch.....doz. \$1.65@1.75
Without Latch.....doz. \$1.30@1.35
Western:
With Latch.....doz. \$1.90@1.95
Without Latch.....doz. \$1.00@1.05

Spring Hinges—

Holdback, Cast Iron, gro. \$9.00@10.00

Non-Holdback, Cast Iron.....

gro. \$7.00@7.50
J. Bardsley
Bardsley's Patent Checking.....10¢
Bommer Bros.:
Bommer's.....33½¢
Chicago Spring Butt Co.:
Chicago.....20¢
Garden City Engine House.....20¢
Keene's 44001 Door.....20¢
Triple End.....40¢

Coleman Hdw. Co.:
Hampton Holdback.....½ gr. \$10.00
J. G. O.....½ gr. \$2.50
Nickel.....½ gr. \$3.00
Lawson Mfg. Co.:
Machinists.....25¢
Matches: Pivot.....40¢
Payson Mfg. Co.:
Oblique, Dbl. Acting.....50¢50¢5¢
Stover Mfg. Co.:
Ideal, No. 16, Detachable, ½ gr.....\$2.50
Ideal, No. 14.....½ gr. \$3.00
New Idea, Double Acting.....45¢
Van Wagoner & Williams Hdw. Co.:
Acme, Brass.....30¢
Acme, American.....30¢
Columbia, No. 14.....½ gr. \$3.00
Columbia, No. 18.....½ gr. \$25.00
Columbia, Adjustable.....30¢
Gem, new list.....25¢
Over Leaf.....½ gr. \$12.50
Oxford, new list.....25¢

Wrought Iron Hinges—

Strap and T Hinges, &c., list Mar.
15, 1898:
Light Strap Hinges.....60¢45¢
Heavy Strap Hinges.....70¢
Light T Hinges.....50¢10¢
Heavy T Hinges.....60¢10¢
Extra Heavy T Hinges.....60¢
Hinge Hasps.....45¢
Stanley's Corrugated Heavy
Strap.....70¢
Stanley's Cor. Ex. Heavy T.....60¢45¢

NOTE—Change in base discounts.

Rolled Plate.....70¢70¢5¢
Screw Hook: 6 to 12 in., lb. 5½¢5¼¢
12 to 20 in., lb. 5¼¢5¼¢
20 to 36 in., lb. 5¼¢5¼¢
Screw Hook and Eye:
¾ in. 1 in. 1½ in. 2 in. 2½ in. 3 in. 3½ in. 4 in. 4½ in. 5 in. 5½ in. 6 in. 6½ in. 7 in. 7½ in. 8 in. 8½ in. 9 in. 9½ in. 10 in. 10½ in. 11 in. 11½ in. 12 in. 12½ in. 13 in. 13½ in. 14 in. 14½ in. 15 in. 15½ in. 16 in. 16½ in. 17 in. 17½ in. 18 in. 18½ in. 19 in. 19½ in. 20 in. 20½ in. 21 in. 21½ in. 22 in. 22½ in. 23 in. 23½ in. 24 in. 24½ in. 25 in. 25½ in. 26 in. 26½ in. 27 in. 27½ in. 28 in. 28½ in. 29 in. 29½ in. 30 in. 30½ in. 31 in. 31½ in. 32 in. 32½ in. 33 in. 33½ in. 34 in. 34½ in. 35 in. 35½ in. 36 in. 36½ in. 37 in. 37½ in. 38 in. 38½ in. 39 in. 39½ in. 40 in. 40½ in. 41 in. 41½ in. 42 in. 42½ in. 43 in. 43½ in. 44 in. 44½ in. 45 in. 45½ in. 46 in. 46½ in. 47 in. 47½ in. 48 in. 48½ in. 49 in. 49½ in. 50 in. 50½ in. 51 in. 51½ in. 52 in. 52½ in. 53 in. 53½ in. 54 in. 54½ in. 55 in. 55½ in. 56 in. 56½ in. 57 in. 57½ in. 58 in. 58½ in. 59 in. 59½ in. 60 in. 60½ in. 61 in. 61½ in. 62 in. 62½ in. 63 in. 63½ in. 64 in. 64½ in. 65 in. 65½ in. 66 in. 66½ in. 67 in. 67½ in. 68 in. 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Latches, Thumb-

Roggin's Latches.....doz. 85c@45c

Lawn Mowers-

See Mowers, Lawn.

Leaders, Cattle-Small.....doz. 45c; large, 55c
Covart Mfg. Co.....45c@55c**Lemon Squeezers-**

See Squeezers, Lemon.

Lifters, Transom-

Dickson:
3 x 4 ft. x 1/2.....\$100 \$11.00
Other sizes, iron.....70c@10c
Other sizes, Brass and Bronze.....70c
Excelior.....60c@60c@10c
Payson's:
Solid Grip Nos. 643 and 644, 7 1/2, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

Lines-

Wire Clothes, Nos. 18 19 20
100 feet.....\$3.50 3.75 3.25
75 feet.....\$1.75
Ossawa Mills:
Crown Solid Braided Chalk.....88c
Mason's, No. 0 to No. 5.....88c
Silver Lake Braided Chalk, No. 0, \$6.00;
No. 1, \$6.50; No. 2, \$7.00; No. 3, \$7.50
7 gr.....80c

Locks, &c.- Cabinet-

Cabinet Locks.....55c@55c@75c
Door Locks, Latches, &c.-
[Net prices are very often made on
these goods.]
Reading Hardware Co.....40c
R. & E. Mfg. Co.....45c 0c
Sargent & Co.....40c@40c@10c
Slaymaker-Barry Co.....30c@35c
Snow's Victor.....60c@10c

Elevator-

Stowell's.....83c@45c

Padlocks-

Wrought Iron, list Dec. 3, '97.....70c@70c@10c
Dog Collar, S. B. Co.....40c
R. & E. Mfg. Co. Wrt. Steel and Brass, 50c
S. B. & Co.....40c

Sash, &c.-

Fitch's Bronze and Brass.....60c@5c
Fitch's Iron.....70c
Ives' Patent.....60c@10c@60c@10c
Payson's Perfect.....70c
Payson's Signal (new list).....75c
Reading.....60c@10c@70c

Machines-**Boring-**

Without Augers.
Upright Angular.
Improved No. 3.....\$1.25 No. 1 \$5.00
Improved No. 4.....3.75 No. 2 3.38
Improved No. 5.....2.75
Jennings'.....2.50 8.00
Miller's Patent.....4.75
Snell's Rice's Pat. 2.50 2.75
Swan's, No. 500.. 5.10 No. 200 6.45

Holisting-

Moore's Anti-Friction Differential Pul-
ley Block.....80c
Moore's Hand Holst, with Lock Brake, 30c

Washing-

Wayne American, 7 doz. \$27.00
Western Star, No. 2, 7 doz. 28.00
Western Star, No. 3, 7 doz. 30.00
St. Louis, No. 41, 7 doz. 60.00

Mallets-

Hickory.....45c@50c@55c
Lignumvite.....45c@50c@55c
Tinner's, Hickory and Applewood,
doz. 60c@55c
Fiber Head Stearns'.....30c@10c

Mats- Door-

Elastic Steel (W. G. Co.).....10c

Mattocks-

List Feb. 23, 1899.....65c@65c@10c

Meat Cutters-

See Cutters, Meat.

Milk Cans-See Cans, Milk.**Mills- Coffee-**

Box and Side, list Jan. 1, '98.....60c@50c@10c@55c

Net prices are often made on some
goods which are lower than above
discounts.
Enterprise Mfg. Co., list Jan. 17, '98, 30c
National, list Jan. 1, '94.....30c
Parker's Columbia and Victor.....60c@10c
Parker's Upright.....30c@10c@40c
Swift, Lane Bros.....30c

Mining Knives-

See Knives, Mining.

Molasses Cates-

See Gates, Molasses.

Money Drawers-

See Drawers, Money.

Mowers, Lawn-

Net prices are generally quoted.

10 12 14 16-inch
Cheap.....\$1.35 \$2.10
Good.....3.25 3.50 3.75 4.00
High Grade 4.25 4.50 4.75 5.00
Pennsylvania and Continental 60c@10c@55c
Quaker City.....70c@55c
Great American.....70c@55c

Philadelphia:

Styles M., S., C., K., T.....70c@10c
Style A, all Steel.....60c@10c
Style E, Low Wheel.....60c@10c
Style E, High Wheel.....70c@10c
Drexel and Gold Coin, low list.....50c

Nails-

Cut and Wire. See Trade Report.
Wire Nails and Brads, Papered.
List July 20, 1899.....80c@80c@10c
Hungarian, Finishing, Upholster-
ers, &c. See Tacks.

Horse-

Nos. 6 7 8 9 10
A. C.....25c 25c 25c 25c 25c
Capwell.....19c 18c 17c 16c 15c@10c@5c
C. B. K.....25c 25c 25c 25c 25c
Champlain.....28c 28c 28c 28c 28c
Maud S.....25c 25c 25c 25c 25c
Neponset.....23c 21c 20c 19c 18c
Putnam.....23c 21c 20c 19c 18c
Standard.....23c 21c 20c 19c 18c
Star.....23c 21c 20c 19c 18c
Vulcan.....23c 21c 20c 19c 18c

Picture

1 1/2 2 2 1/2 3 3 1/2 in.
Brass Head.....45c .60 .70 .95 1.00 gro.
For. Head.....1.10 1.10 1.10 . . gro.

Nippers, See Pliers and Nippers.**Nut Crackers-**

See Crackers, Nut.

Nuts-

List Feb. 1, '99.
Cold Punched. Off
Mfrs. or U. S. Standard. list.
Hexagon, plain.....3.90@4.10c
Square, plain.....3.80@4.10c
Square, C. T. & R.....3.70@3.90c
Hexagon, C. T. & R.....4.80@4.10c

Hot Pressed:

Mfrs., U. S. or Nar. Gauge Stand.
Square.....4.80@4.50c
Hexagon.....4.60@4.70c
NOTE.-Tapped Nuts are now 2-10c
higher than above.

Oakum-

Best or Government.....lb. 54c
Navy.....lb. 44c
U. S. Navy.....lb. 54c
Plumbers' Spun Navy.....54c
In carload lots 1/4 lb. off f.o.b. New
York.

Oil Tanks-See Tanks, Oil.**Oilers-**

Brass and Copper.....40c@10c@50c
Tin or Steel.....60c@10c@70c@55c
Zinc.....60c@50c@65c
Malleable, Hammers, Improved, No. 1
\$3.60; No. 2, \$4.10; No. 3, \$4.40 per doz. 20c
Malleable, Hammers, Old Pattern,
same list.....60c@10c
Wilmot & Hobbs Mfg. Co.....70c@70c@10c

Openers-

Can-
French.....doz. 35c
Iron Handle.....doz. 57c
Sprague, Iron Handle, per doz 35c@40c
Sardine Scissors.....doz. \$1.75@2.00
National, 7 gro.....\$1.75@2.00
Stowell's.....per doz. 40c@45c

Egg-

Nickel Plate.....per doz., \$2.00

Silver Plate.....per doz., \$4.00

Packing-

Rubber-
Standard, fair quality.....70c@10c@75c
Inferior quality.....75c@10c@80c
Extra.....60c@50c@10c@55c
Jenkins' Standard, 7 1/2 8 1/4.....35c@25c@55c

Miscellaneous-

American Packing.....9c@10c lb.
Cotton Packing.....15c@10c lb.
Italian Packing.....10c@11c lb.
Jute.....6c@5c lb.
Russia Packing.....12c@13c lb.

Pails-

Creamery-
S. S. & Co., with gauges.. No 1 \$6.50;
No. 2, \$6.75 per doz.

Galvanized-

Inch.....10 12 14
Water, Standard,
gro.....\$23.00 \$26.00 \$29.00
Water, Regular.. 19.00 22.00 25.00
Water, Heavy.....23.00 25.50 28.00
Fire, Rd. Bottom,
gro.....31.00 33.00 35.00
Well, gro.....27.00 29.00 31.00

Pans-

Dripping-
Large Sizes.....lb. 1 1/4c
Small Sizes.....lb. 54c

Fry-

Standard List.....75c@10c@80c

Roasting and Baking-

Regal, S. S. & Co., 7 doz. Nos. 5, \$4.50;
10, \$5.00; 20, \$5.50; 30, \$6.00.
Simplex, 7 gro. No. 40, \$30.00; 50,
\$34.50; 60, \$39.00; 140, \$39.00; 150,
\$37.50; 160, \$43.00.

Paper-**Building Paper-**

Per roll
Rostin Sized Sheathing: 500 sq. ft.
Light wt., 20 sq. ft. to lb. \$0.40@0.45
Medium wt., 12 sq. ft. to lb. \$0.60@0.65
Heavy wt., extra quality, \$0.95@1.05
Medium Grades Water Proof
Sheathing.....\$0.80@1.55
Deafening Felt, 9, 6 and 1 1/2 sq. ft.
to lb., ton.....\$15.00@50.00
York Haven Waterproof Sheathing.....\$1.85@1.75

Tarred Paper.

1 ply (roll 300 sq. ft.), ton, \$35.00@40.00
2 ply, roll 100 sq. ft.....90c
3 ply, roll 100 sq. ft.....\$1.80

Sand and Emery-

List Dec. 23, 1899.....50c@10c@50c@10c@10c
See Trade Report.

Parers-**Apple-**

Advance.....7 doz. \$4.50
Baldwin.....7 doz. \$5.00
Bonanza.....each \$5.00
Dandy.....each \$7.50
Eureka, 1898.....each \$16.00
Family Bay State.....7 doz. \$12.00
Hudson's 1 1/2 lb. Star.....7 doz. \$4.00
Hudson's Rocking Table.....7 doz. \$5.50
Improved Bay State 7 doz. \$27.00@30.00
New Lightning.....7 doz. \$5.50
Reading 78.....7 doz. \$4.00
Reading 79.....7 doz. \$7.00
Turn Table 78.....7 doz. \$5.50
White Mountain.....7 doz. \$4.00

Potato-

Saratoga.....7 doz. \$5.50

White Mountain.....7 doz. \$4.50

Paris Green-

Arsenic, kegs or casks.....lb. 13 c
Kegs, 100 to 175 lb.....lb. 15 1/2 c
Kils, 1 lb., 88, 66 lb.....lb. 14 1/2 c
Paper boxes, 2 to 5 lb.....lb. 14 1/2 c
Paper boxes, 1 lb.....lb. 15 c
Paper boxes, 1/2 lb.....lb. 16 c
Paper boxes, 1/4 lb.....lb. 17 c

Picks and Mattocks-

List Feb. 23, 1899.....65c@65c@10c

Pinking Irons-

See Irons, Pinking.

Pins-**Escutcheon-**

Brass

Pulleys—

Hay Fork, Swivel or Solid Eye
doz. \$1.60 to \$2.00
Hay Fork, Stowell's Anti-Friction, 5-in.
Wheel, 7 doz. \$12.00
Hot House, Awning, etc. 800 to 1000
Japanned Clothes Line 800 to 1000
Japanned Screw 700 to 1000
Japanned Side 700 to 1000
Stowell's Ceiling or End, Anti-Friction 600
Stowell's Dumb Waiter, Anti-Friction 600 to 1000
Stowell's Electric Light 600 to 1000
Stowell's Side, Anti-Friction 600 to 1000

Sash Pulleys—

Common Sense, 1 1/4 in. 20¢
2 in. 25¢
Empire 1 1/4 in. 17¢ 2 in. 19¢
Grand Rapids All Steel Noiseless 40¢
Ideal No. 13 1 1/4 in. 17¢ 2 in. 19¢
Improved 1 1/4 in. 17¢ 2 in. 19¢
Niagara 1 1/4 in. 16¢ 2 in. 19¢
No. 26, Troy 1 1/4 in. 16¢ 2 in. 19¢
Star 1 1/4 in. 16¢ 2 in. 19¢
Acme 1 1/4 in. 16¢ 2 in. 19¢
Fox-All-Steel, Nos. 3 and 7, 2 1/4 in. 25¢
No. 9, 1 1/4 in. 20¢
Extra for Plated Finish 20¢
Extra for Anti-Friction Bronze 20¢
Tackle Blocks—See Blocks.

Pumps—

Cistern 800 to 1000
Pitcher Spout 700 to 1000
Pump Leathers, all sizes 800 to 1000
Flint & Walling's Fast Mail 500 to 1000
Flint & Walling's Pitcher Spout 700 to 1000
Loud's Suction Pumps, U. H. Co. 200
Myer's Pumps, low list 500
Contractors' Rubber Diaphragm Non-chokable, B. & L. Block Co. 200

Punches—

Revolving (4 tubes) doz. \$3.75 to \$4.00
Saddlers' or Drive, good, doz. 65¢ to 70¢
Spring, good quality 1.70 to 1.80
Bemis & Call Co.'s Cast Steel Drive 50¢
Bemis & Call Co.'s Check 55¢
Bemis & Call Co.'s Spring 50¢
Niagara Hollow Punches 45¢
Niagara Solid Punches 55¢
Spring, Leach's Pat. 15¢
Steel Screw, B. & K. Mfg. Co. 40¢
Timners' Hollow, P., S. & W. Co. 35¢ to 40¢
Timners' Solid, P., S. & W. Co. 55¢
\$1.44

Rail—**Barn Door, &c.—**

Barn Door, Light, 1/2 in. 5¢ 3/4 in. 6¢
100 feet \$2.00 \$2.50 \$3.00
B. D. for N. E. Hangers
Small Med. Large
100 feet \$2.20 \$2.70 \$3.20
Sliding Door, Bronzed Wrt Iron, ft. 6¢ to 10¢
Sliding Door, Iron Painted 2 1/2 to 3¢
Sliding Door, Wrought Brass, 1 1/2 in. 30¢
Cronk's Double Braced Steel Rail, 3 in. 30¢
Lanes' O. S. T. 100 ft. 1 inch. \$3.00
Lanes' Standard, 100 ft. 4.25
Lawrence Bros. 100 ft. 4.45
McKinney's None Better 100 ft. 3.95
McKinney's Standard 100 ft. 3.45
Moore's Wrt. Bracket, Steel 3.45
Stowell's Steel Rail, Plain 1.65

Rakes—

Aug. 1, 1899, List:
Cast Steel 70¢ to 85¢
Malleable 60¢ to 75¢
Fort Madison Red Head Lawns 35¢
Fort Madison Blue Head Lawns 30¢

Rasps, Horse—

Dist. m's 75¢
Heller Bros. 80¢ to 100¢
McCahey File Co. Horse Rasps 80¢ to 100¢
New Nicholson Horse Rasp 70¢ to 100¢
See also Files.

Razors—

Fox Razors, No. 42, 7 doz. \$20.00
Fox Razors, No. 44, 7 doz. \$24.00
Fox Razors, No. 52, Platina, 7 doz. \$24.00

Razor Straps—

See Straps, Razor.

Reels—**Fishing—**

Hendryx Aluminium, German Silver, Gold, Bronze, Silver, Rubber, Popolo and Salmon, Single Action, Multiplying and Quadruple, all sizes 45¢
Hendryx Single Action Series 45¢
and PN, 202P and PN, 102 PR and PN, 202 PR and PN, 304 P and PN, 00904P and PN, 502 and 502N, 802 and 802N, 02084N, Competitor 50¢
Hendryx Multiplying and Quadruple Series, 3004N and PN, 4N and PN, 9004N, 9004P and PN, 002904PN, 0024 and 0024N, 5009N and PN 40¢ to 100¢

Registers—

For points on Mississippi River and East:
Black Japanned 30¢ to 100¢
White Japanned 30¢ to 100¢
Bronzed Finishes 30¢
Nickel Plated 30¢ to 100¢
Electro Plated in Brass, &c., 30¢ to 100¢
White Porcelain 30¢
Solid Brass and Bronze Metal 30¢
Note—Higher prices are quoted in territory further West.

Riddles, Grain or Sand—

16 in. per doz. \$2.00 to \$2.25
17 in. per doz. \$2.25 to \$2.50
18 in. per doz. \$2.50 to \$2.75

Rings and Ringers—

Bull Rings—
Steel 30¢ to 75¢ 0.53 0.88 doz.
Copper 1.10 1.30 1.60 doz.

Hog Rings and Ringers—

Half Rings, gro. boxes, \$4.50 to \$5.00
Blair's Rings, G. I. doz. 75¢
Blair's Rings, 7 gr. \$5.75 to \$6.00
Blair's Rings, 7 gr. \$6.00 to \$6.50
Brown's Rings, 7 gr. \$6.00 to \$6.50
Brown's Rings, 7 gr. \$6.00 to \$6.50
Perfect Rings, 7 gr. \$6.00 to \$6.50
Perfect Rings, 7 gr. \$6.00 to \$6.50
Rapid Rings, 7 gr. \$6.00 to \$6.50
Rapid Rings, 7 gr. \$6.00 to \$6.50

Rivets and Burrs—

Copper 10¢ to 100¢
Iron or Steel:
Timners 55¢ to 58¢
Miscellaneous 58¢ to 60¢
Rivet Sets—See Sets.

Roasting and Baking

Pans—See Pans, Roasting and Baking.

Rollers—

Acme Stowell's Anti-Friction 50¢
Barn Door, Sargent's List, 600 to 1000 70¢
Lane's Stay 33¢ to 45¢
Stowell's Barn Door Stay 1.35

Rope—

NOTE—Carload lots, except on Jute Rope, 1/2 lb. less than the following prices, which are for small lots.

Manila, 7-16 in. and larger.
lb. 16¢
Manila, 1/4 and 5-16 in. lb. 16¢
Manila, Tarred Rope, 15 thread 16¢
Manila Hay Rope Med'm lb. 15¢
Sisal 7-16 in. and larger lb. 10¢
Sisal 1/4 and 5-16 in. lb. 11¢
Sisal Hay Rope, 8 to 10 ply 10¢
Sisal Tarred, Medium Lath Yarn lb. 10¢
Cotton Rope:
Best 1/4 in. and larger lb. 13¢ to 14¢
Med'm 1/4 in. and larger lb. 10¢ to 11¢
Com. 1/4 in. and larger lb. 8¢ to 10¢
Jute Rope, No. 1, 1/4 in. and up lb. 7¢
Jute Rope No. 2, 1/4 in. and up lb. 6¢ to 7¢
Wire Rope—
Galvanized 20¢ to 25¢
Plain 30¢ to 35¢

Ropes, Hammock—

Covert Mfg. Co. 45¢ to 50¢
Covert Saddlery Works 60¢
Rules—
Boxwood 75¢ to 100¢
Ivory 100¢ to 120¢
Larkin's Steel 50¢ to 100¢
Larkin's Lumber 50¢ to 100¢
Stanley H. & L. Co. 50¢ to 100¢
Boxwood 75¢ to 100¢
Ivory 100¢ to 120¢

Sad Irons—See Irons, Sad.**Sand and Emery Paper and Cloth—**

See Paper and Cloth.

Sash Cords—See Cord, Sash.**Sash Locks—See Locks, Sash.****Sash Weights—**

See Weights, Sash.

Sausage Stuffers or Fillers—

See Stuffers or Fillers, Sausage.

Saw Frames—

See Frames, Saw.

Saw Sets—See Sets, Saw.**Saw Tools—See Tools, Saw.****Saws—**

Atkins' Circular 50¢ to 50¢ to 100¢
Atkins' Band 50¢ to 100¢
Atkins' Cross Cuts 35¢ to 50¢
Atkins' Mulay, Mill and Drag 50¢ to 100¢
Atkins' One-Man Saw 40¢
Atkins' Wood Saws 40¢
Dixton Circular Solid and Inserted Tooth 50¢
Dixton Band 2 to 14 in. wide 80¢
Dixton Band 1/4 to 1 1/4 70¢
Dixton Crosscuts 45¢ to 45¢ to 100¢
Dixton Narrow Crosscuts 50¢ to 100¢
Dixton Mulay, Mill and Drag 50¢
Dixton Framed Woodsaws 35¢ to 50¢
Dixton Woodsaw Blades 40¢ to 40¢ to 100¢
Dixton Woodsaw Rods 25¢
Dixton Hand Saws, Nos. 12, 9, 9, 10, 11, 10, 12, 7, 7, 8, 25¢ to 25¢ to 75¢
Dixton Hand Saws, Nos. 7, 7, 7, 10, 7, 7, 8, 1, 1, 0, 0, Combination 30¢ to 30¢ to 100¢
Dixton Compass Keyhole 35¢ to 35¢ to 75¢
Dixton Butcher Saws and Blades 35¢ to 35¢ to 75¢
C. E. Jennings & Co.'s 25¢ to 25¢ to 80¢
Peace Circular and Mill 50¢
Peace Cross Cuts, list Jan. 1, '99 50¢
Richardson's Circular and Mill 50¢
Richardson's X Cuts, list Jan. 1, '99 50¢
Richardson's Hand. &c. 30¢
Simonds' Circular Saws 50¢
Simonds' Crescent Ground Cross Cut Saws 35¢
Simonds' Cross Cuts 40¢ to 100¢
Simonds' Gang Mill, Mulay and Drag Saws 45¢ to 45¢ to 55¢

Hack Saws—

Dixton Concave Blades 25¢
Dixton Keyhole 80¢
Dixton Hack Saw Frames 50¢
Griffin's complete 50¢ to 50¢ to 100¢
Griffin's Hack Saw Blades 50¢ to 50¢ to 100¢
Star Hack Saws and Blades 15¢ to 15¢ to 100¢

Scroll—

Barnes' No. 7 15¢
Barnes' Scroll Saw Blades 25¢
Barnes' Velocipede Power Scroll Saw, with boring attachment, \$18.
Lester, complete \$10.00
Rogers, complete \$4.00

Scale Beams—

See Beams, Scale.

Scales—

Formly, Turnbull's 30¢ to 30¢ to 100¢
Hatch, Counter:
Platform, 1 lb. by 1/4 oz. doz. \$5.75
Two Platforms, 3 lb. by 1/4 oz. doz. \$16.00

Union Platform, Striped—

Union Platform, Striped \$2.00 to \$2.10
Chattillon's Scales 25¢
Chattillon's Favorite 40¢
Chattillon's Grocers' Trip Scales 50¢
Pelouze Scales—Family, Candy, Grocers and Postal New list net
"The Standard" Portables 45¢
"The Standard" R. R. and Wagon 50¢

Scrapers—

Box, 1 Handle doz. \$2.25 to \$2.75
Box, 2 Handle doz. \$3.75 to \$4.00
Ship, No. 1, doz. \$3.50; No. 2, \$2.25 to \$2.40
Adjustable Box Scraper (B. R. & L. Co.) \$8.00
Foot, W. E. Pratt Mfg. Co. doz. \$1.15 to \$1.25

Screens, Window and Frames—

Bonanza Window Screens 50¢ to 100¢
Maine Window Screen Frames 40¢ to 100¢
Phillips' Window Screen Frames 60¢
Porter's Extension Window Screens 80¢ to 100¢
Wabash Spring Adj. Screen 50¢

Screw Drivers—

See Drivers, Screw.

Screws—**Bench and Hand—**

Bench, Iron, doz. 1 in. \$3.00 to \$3.25;
1 1/2, \$3.50 to \$3.75; 1 3/4, \$4.00 to \$4.50
Bench, Wood, Beech, doz. \$3.50 to \$3.75
Hand, Wood 35¢ to 40¢
Hand, Grand Rapids 35¢
Hand, R. Bliss Mfg. Co. 35¢

Coach, Lag and Hand Rail—

Lag, Common Point, list Oct. 1, '99 65¢ to 65¢
Coach and Lag, Gimlet Point, list Oct. 1, '99 65¢
Hand Rail, list Jan. 1, '81 60¢ to 100¢

Jack Screws—

Millers Falls, Roller 50¢ to 100¢
Millers Falls, Roller 50¢ to 100¢
P. S. & W. 40¢ to 40¢ to 100¢
Sargent 80¢ to 80¢ to 100¢

Machine—

List Jan. 1, '98.
Flat or Round Head, Iron 50¢
Flat or Round Head, Brass 50¢

Set and Cap—

Set (Iron or Steel) 60¢
Sq. Hd. Cap 55¢
Hex. Hd. Cap 60¢

Wood—

List Jan. 1, 1900.

Flat Head, Iron—

Flat Head, Iron 80¢
Flat Head, Iron 75¢
Flat Head, Brass 77¢
Flat Head, Brass 75¢
Flat Head, Bronze 75¢
Round Head, Bronze 70¢
Drive Screws 80¢

Scroll Saws—See Saws, Scroll.**Scythes—**

Grass Scythes:
Natural Finish per doz. \$3.00
Pol. Blade per doz. \$3.50
Painted or Bronzed per doz. \$3.25
Weed and Bush per doz. \$7.50 to \$7.75

Scythe Snaths—

See Snaths, Scythe.

Seeders—

Raisin 35¢ to 30¢

Sets—**Awl and Tool Set—**

Wood Hdl., 10 Awls doz. \$2.00 to \$2.25
Wood Hdl., 10 Awls, 5 Tools doz. \$2.00 to \$2.60

Alken's Sets, Awl and Tools—

No. 20, 7 doz. \$10.00 to \$10.00 to 100¢
Fray's Adj. Tool Hdl., Nos. 1, 1 1/2; 2, 1 1/2; 3, 1 1/2; 4, 2; 5, 2; 6, 2; 7, 2; 8, 2; 9, 2; 10, 2; 11, 2; 12, 2; 13, 2; 14, 2; 15, 2; 16, 2; 17, 2; 18, 2; 19, 2; 20, 2; 21, 2; 22, 2; 23, 2; 24, 2; 25, 2; 26, 2; 27, 2; 28, 2; 29, 2; 30, 2; 31, 2; 32, 2; 33, 2; 34, 2; 35, 2; 36, 2; 37, 2; 38, 2; 39, 2; 40, 2; 41, 2; 42, 2; 43, 2; 44, 2; 45, 2; 46, 2; 47, 2; 48, 2; 49, 2; 50, 2; 51, 2; 52, 2; 53, 2; 54, 2; 55, 2; 56, 2; 57, 2; 58, 2; 59, 2; 60, 2; 61, 2; 62, 2; 63, 2; 64, 2; 65, 2; 66, 2; 67, 2; 68, 2; 69, 2; 70, 2; 71, 2; 72, 2; 73, 2; 74, 2; 75, 2; 76, 2; 77, 2; 78, 2; 79, 2; 80, 2; 81, 2; 82, 2; 83, 2; 84, 2; 85, 2; 86, 2; 87, 2; 88, 2; 89, 2; 90, 2; 91, 2; 92, 2; 93, 2; 94, 2; 95, 2; 96, 2; 97, 2; 98, 2; 99, 2; 100, 2

Stanley's Excelsior—

No. 1 \$7.50; No. 2 \$4.00; No. 3 \$5.50
No. 4 \$3.00 to \$3.00 to 100¢

Garden Tool Sets—

Ft. Madison Rakes, Shovel and Hoe 90¢

Nail—

Round, assorted gro. \$3.25 to \$3.75
Octagon gro. \$1.25 to \$1.75
Knurled, Good gro. \$5.00 to \$5.50
Buck Brothers 37¢
Cannon's Diamond Point 7 gr. \$13. 25¢
Snell's Corrugated Cup Pt. 66¢
Snell's Knurled Cup Pt. 66¢

Rivet—

Regular list 70¢ to 70¢ to 100¢

Saw—

Alken's Genuine 7 doz. \$4.50 to \$5.00
Alken's Genuine 7 doz. \$3.00 to \$3.10
Atkin's Criterion 40¢
Atkin's Adjustable 40¢
Bemis & Call Co.'s Cross Cut 80¢

Bemis & Call Co.'s Plate—

Bemis & Call Spring Hammer 20¢
Bemis & Call Star and Moon ch. 25¢
Hammer, Bemis & Call Co.'s new Pat. 45¢
Morrill's No. 1 \$15.00 40¢ to 20¢
Nos. 3 and 4, Cross Cut \$25.00 40¢ to 20¢
No. 5, Mill \$31.00 40¢ to 20¢
No. 10, \$15.50 40¢ to 20¢
No. 11, \$16.00 40¢ to 20¢
Taintor Positive, 7 doz. \$18. 60¢

Sharpeners, Knife—

Tanite Mills 7 gross, \$14.40 25¢ to 35¢

Shaves, Spoke—

Iron doz. \$1.00 to \$1.25
Wood 1.75 to 2.25
Bailey's (Stanley R. & L. Co.) 50¢ to 100¢
Goodell's, 7 doz. \$9.00 15¢ to 10¢

Shears—

Cast Iron 7 8 9 in.
Best 16.00 18.00 20.00 gro.
Good 12.00 15.00 17.00 gro.
Cheap 5.00 6.00 7.00 gro.
Straight Trimmers, &c.:
Best quality, Jap. 60¢ to 100¢
Fair qual. Jap. 75¢ to 100¢
Nickel 70¢ to 100¢

Tailors' Shears—

Acme Cast Shears 40¢ to 40¢
Heinrich's Tailors' Shears 40¢ to 40¢
National Cutlery Co., Nickel 60¢ to 100¢
National Cutlery Co., En. Hdl. 70¢ to 100¢
Seymour's, Jan. 70¢
Seymour's Nickel 60¢
Seymour's Tailors' Shears 40¢
Wilkinson's Hedge 50¢
Wilkinson's Sheep 15¢

Timners' Snips—

Forged Handles, Steel Blades 80¢ to 100¢
Malleable Handles, Laid with Steel 40¢
Forged Handles, Steel Blades, Berlin 40¢ to 100¢
Niagara Snips 40¢
Seymour's 40¢ to 40¢

Pruning Shears and Tools—

Diamond Edge Tree Pruners 70¢ to 80¢
Dixton's Combined Pruning Hook and Saw 70¢ to 100¢
Dixton's Pruning Hook 70¢ to 100¢
John T. Henry Mfg. Company:
Pruning Shears, all grades 50¢ to 50¢
Orange Shears 60¢ to 80¢
Grape 60¢ to 100¢
Tree Pruners 75¢
P. S. & W. Co. 85¢ to 85¢ to 100¢
Seymour's 80¢ to 100¢ to 100¢

Sheaves—Sliding Door—

Stowell's Anti-Friction 50¢
Patent Roller 60¢ to 60¢ to 100¢
Patent Roller Hatfield's, Sargent's list 80¢ to 80¢ to 100¢
Reading 70¢ to 100¢
R. & E. 45¢ to 100¢
Wrightsville, Hatfield Pattern 80¢

Sliding Shutter—

Reading list 70¢ to 100¢
R. & E. 60¢ to 80¢ to 100¢
Sargent's list 50¢ to 50¢ to 100¢

Shells—**Shells, Empty—**

Brass Shells, Empty:
First quality, all gauges 60¢ to 50¢
Club, Rival, Climax, 10 and 12 gauge 65¢ to 50¢

Paper Shells, Empty—

Club, Rival, Climax, Ideal, 14, 16 and 20 gauge (\$7.50 list) 20¢ to 100¢
Club, Rival, Climax, League, 10 and 12 gauge 33¢ to 55¢
Acme, Leader, New Rapid, Ideal, Smokeless, 10, 12, 16 and 20 gauge 33¢ to 100¢
Trap and Metal Lined, 10, 12, 16 and 20 gauge 33¢ to 100¢
Primrose Club, Blue Rival, Yellow Rival, New Climax, 10, 12, 16 and 20 gauge 30¢
High Base, Nitro, Repeater, Defiance, New Victor, 10, 12, 16 and 20 gauge 15¢

Shells, Loaded—

Loaded with Black Powder 40¢ to 50¢
Loaded with Nitro Powder 40¢ to 100¢

Shoes, Horse, Mule, &c.—**Factory Shipments:**

Horse and Mule, per keg \$3.75
Burdett's all sizes \$3.70
Bryden, Phoenix, Forkins, &c. \$3.75
Diamond State, Schoenberg, Crescent, &c. \$3.75
Note—See Trade Report.

Shot—

Drop, up to B,

Shovels and Tongs—

Brass Head.....60¢@80¢10¢
Iron Head.....60¢@80¢10¢

Sieves and Sifters—

Hunter's Imitation, gro. \$11.00@12.00
Buffalo Metallic Blued, S. S. & Co., 7 gr.:
14&16.....18&20
12, 90.....\$18.50
Electric Light.....7 gr. \$10.00
Hunter's Genuine.....7 gr. \$12.50
Shaker (Barler's Pat.) Flour Sifters:
7 doz., \$23.00.....95¢

Sieves, Wooden Rim—

Nested, 10, 11 and 12 Inch.
Mesh 18, Nested, doz.....\$0.75@0.80
Mesh 20, Nested, doz......85@.90
Mesh 24, Nested, doz.....1.00@1.05

Sinks—**Cast Iron—**

Low list.....60¢@65¢
NOTE.—The low list is now generally used, but some jobbers use high list.

Wrought Steel—

Columbus Galv'd and Enamelled.....60¢5¢
Columbus, Painted.....45¢5¢
L. & G.....50¢

Skeins, Wagon—

Cast Iron.....70¢@70¢10¢
Malleable Iron.....40¢@10¢50¢
Steel.....35¢@55¢5¢
L. I. & B. Co. Steel.....35¢

Slates—

"D" Slates.....50¢@10¢50¢10¢10¢
Unexcoiled Noiseless Slates.....
60¢6 tens@60¢6 tens5¢
Wire Bound.....40¢@10¢50¢
Double Slates, add \$1 case, net.

Slaw Cutters—See Cutters.**Snaps, Harness—**

German.....40¢@40¢10¢
Covert Mfg. Co.:
Derby.....35¢2¢
High Grade.....45¢2¢
Jockey.....40¢2¢
Trojan.....45¢2¢

Covert's Saddlery Works:
Banner.....80¢10¢
Crown.....90¢10¢
Triumph.....60¢10¢

W. & E. T. Fitch Co.:
Bristol.....40¢10¢
Empire.....50¢5¢
German.....40¢
National.....50¢5¢
Perfect.....45¢
Clippet.....50¢5¢
Champion.....40¢
Security.....40¢
Victor.....60¢5¢

Onel in commun ty:
Sol d Steel.....65¢@65¢10¢
Solite Swivel.....45¢1¢@55¢10¢
Sargent's Patent Guarded.....60¢@60¢10¢

Snaths—

Scythe.....45¢5¢

Snips, Tinnners'—See Shears.**Soldering Irons—**

See Irons, Soldering.

Spoke Trimmers—

See Trimmers, Spoke.

Spoons and Forks—

Silver Plated—

Flat Ware.....50¢@10¢60¢10¢
Wm. Rogers M'g. Co.....50¢10¢

Miscellaneous—

German Silver.....80¢10¢
Wm. Rogers Mfg. Co.:
18¢ German Silver.....60¢
Rogers' Silver Metal.....50¢10¢

Springs—

Door—

Gem (Coll).....30¢
Star (Coll).....30¢
Torrey's Rod, 39 in., 7 doz., \$1.10@1.25
Warner's No. 1, 7 doz., \$1.50; No. 2, \$3.40
Victor (Coll).....60¢10¢60¢10¢5¢

Carriage, Wagon, &c.

14 in. and wider...Blk. Hf. Brt. Brt.
Tested and Temp 5½ 5½ 6c lb
Oil Tested and
Tempered.....6½ 6½ 7c lb
Cliff's Bolster Springs.....33¢
Cliff's Seat Springs.....7 pair 55¢

Sprinklers, Lawn—

Enterprise.....25¢@30¢
Philadelphia No. 1, 7 doz., \$12; No. 2, \$16; No. 3, \$24.

Squares—

Nickel plated.....List Jan. 5, 1900
Steel and Iron.....70¢@70¢5¢
Rosewood Hdl. Try Square and T-Bevels.....60¢@10¢70¢
Iron Hdl. Try Squares and T-Bevels.....40¢@10¢40¢10¢
Dixton's Try Sq. and T-Bevels.....60¢10¢
Winterbottom's Try and Miter.....50¢10¢

Squeezers—

Lemon—

Wood, Common, gro., No. 6, \$5.55
@45 50; No. 1, \$6.25@6.50.
Wood, Porcelain Lined:
Cheap.....doz., \$2.00@2.75
Good Grade.....doz., \$3.00@3.50

Tinned Iron.....doz. \$0.75@1.25
Iron, Porcelain Lined doz. \$2.90@3.25
Jennings' Star.....7 doz. \$1.35@1.90
King.....7 doz. \$2.00

Staples—

Barbed Blind.....lb. 9¢@10¢
Electricians' Association list, 70¢10¢
Fence Staples, same price as Barbed Wire. See Trade Report.
Poultry Netting.....80¢10¢
Grand Crossing Tack Co.'s list.....75¢10¢

Steels, Butchers'—

Dick's.....40¢
Foster Bros'.....30¢
C. & A. Hoffmann's.....40¢
Nichols Bros.....50¢

Steelyards—

Stocks and Dies—

Blacksmiths'.....40¢
Gardner.....50¢
Green River.....25¢
Lighting Screw Plate.....25¢
Little Giant.....25¢
Rever's New Screw Plates.....25¢30¢
Curtis Reversible Ratchet Die Stock, 25¢

Stone—**Soythe Stones—**

Pike Mfg. Co., list '95-'96.....83¢4¢
Cleveland Stone Co., list Nov. '93.....33¢4¢

Oil Stones, &c.

Pike Mfg. Co.:
Hindustan No. 1, 7 doz., 8¢
Sand Stone.....5¢
Turkey Oil Stone, Extra.....33¢4¢
5 to 9 lb.....33¢4¢10¢
Turkey Slips.....\$1.50
Lily White Washita.....60¢
Rose Red Washita.....60¢
Washita Stone, Extra.....50¢
Washita Stone, No. 1.....40¢
Washita Stone, No. 2.....30¢
Lily White Slips.....90¢
Rose Red Slips.....90¢
Washita Slips, Extra.....50¢
Washita Slips, No. 1.....30¢
Arkansas Stone, No. 1, 5¢ doz. \$3.50
Arkansas Stone, No. 1, 5¢ doz. \$3.50
Tanite Mills:
Emery Oil, 7 doz. \$5.00.....50¢@80¢

Stoners—**Cherry—**

Enterprise.....25¢@30¢

Stops, Bench—

Millers Falls.....15¢10¢
Morrill's...7 doz., No. 1, \$10.00; No. 2, \$11.00, 40¢20¢

Stops, Window—

Ives' Patent.....25¢5¢
Taplin's.....45¢
Wilcox, Steel, per doz., \$8.00.....50¢

Stove Boards—

See Boards, Stove.

Stove Polish—See Polish, Stove.**Straps, Box—**

Cary's Universal, case lots.....20¢10¢

Stretchers, Carpet—

Cast Iron, Steel Points.....doz. 55¢@65¢
Cast Steel, Polished.....doz. \$3.25
Socket.....doz. \$1.75

Stuffers, Sausage—

Miles' Challenge, 7 doz. \$20.....50¢@50¢5¢
Enterprise Mfg. Co.....25¢@25¢7¢4¢
National Specialty Mfg. Co., list Jan. 1, '97.....30¢

Tacks, Brads, &c.—

List Jan. 15, '99.
Carpet Tacks:
American Blued.....90¢@90¢10¢
American Tinned.....90¢@90¢10¢
American Cut Tacks.....85¢10¢@85¢10¢10¢
Swedes Iron Tacks.....90¢@90¢10¢
Swedes Upholsterers' Tacks.....90¢@90¢10¢
Gimp Tacks.....90¢@90¢10¢
Lace Tacks.....90¢@90¢10¢
Trimmers' Tacks.....90¢@90¢10¢
Looking Glass Tacks.....70¢@70¢10¢
Bill Posters' and Railroad Tack.....90¢@90¢10¢
Hungarian Nails.....80¢@80¢15¢
Common and Patent Brads.....70¢5¢
Trunk and Clout Nails.....75¢5¢@75¢10¢5¢
NOTE.—The above prices are for straight weights. An extra 5¢ is given Star Weights and an extra 10¢ on Standard Weights.

Miscellaneous—

Double Point Tacks.....9¢4¢ or 5¢ tens
Steel Wire Brads, R. & E. Mfg. Co.'s list.....60¢10¢@60¢
See also Nails, Wire.
Tanks, Oil—
Emerald, S. S. & Co.....30-gal. \$3.20
Emerald, S. S. & Co.....60-gal. \$4.00
Queen City S. S. & Co., 0-gal. \$3.50
Queen City S. S. & Co., 60-gal. \$4.25
Tapes, Measuring—
American Asses' Skin.....40¢10¢@50¢
Patent Leather.....35¢@30¢5¢
Steel.....45¢@40¢5¢
Chesterman's.....50¢@25¢5¢

Eddy's Steel.....40¢@40¢5¢
Eddy's Metallic.....33¢@33¢4¢5¢
Keuffel & Esser Co., Steel and Metallic.
Lower list, 1899.....35¢
Lufkin's Steel.....33¢@35¢
Lufkin's Metallic.....30¢5¢

Thermometers—

Tin Case.....80¢@80¢10¢

Ties, Bale—Steel.

Standard Wire.....50¢10¢5¢

Ties, Wall—

Cleveland, Steel.....7 1000, \$10.00

Tinnners' Shears, &c.—

See Shears, Tinnners', &c.

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tire Benders, Upsetters, &c.—See Benders and Upsetters, Tire.**Tobacco Cutters—**

See Cutters, Tobacco

Tools—**Coopers'—**

L. & I. J. White.....20¢@20¢5¢

Saw—

Atkins' new list.....40¢
Simonds' Improved.....33¢4¢
Simonds' Crescent.....25¢

Ship—

L. & I. J. White.....25¢

Transom Lifters—

See Lifters, Transom.

Traps—Game—

Oneida Pattern.....70¢10¢@75¢10¢
Newhouse.....45¢50¢
Hawley & Norton.....65¢5¢70¢
Victor (Oneida Pattern).....75¢@75¢10¢
Star (Blake Pattern).....65¢10¢@70¢5¢

Mouse and Rat—

Mouse, Wood, Choker, doz. holes 9¢@10¢
Mouse, Round or Square Wire.....doz. \$0.85@1.00

Marty French Rat and Mouse Traps (Genuine):

No. 1, Rat, 7 doz. \$12.00; case of 24 \$10.50
No. 3, Rat, 7 doz. \$5.50; case of 50 \$5.00
No. 3½, Rat, 7 doz. \$1.50; case of 72 \$4.00
No. 4, Mouse, 7 doz. \$3.50; case of 72 \$2.75
No. 5, Mouse, 7 doz. \$2.75; case of 150 \$2.25
Schuyler's Rat Killer, No. 1, 7 gr. \$30.00; No. 2, 7 gr. \$30.00; Mouse, No. 3, \$18.00
Out of Sight, Mouse, No. 1, 7 doz. 60¢; Rat, No. 2, \$1.25; Mole, \$0.00; Gopher, \$1.50; Stop Thief, No. 1, \$1.35; No. 2, \$1.50.

Flv—

Balloon, Globe or Acme.....doz. \$1.15@1.25; gro. \$12.00@14.00
Harper, Champion or Paragon.....doz. \$1.25@1.40; gro. \$13.50@15.00

Trimmers, Spoke—

Bonney's Nos. 1 and 2.....40¢
Stearns.....25¢

Trowels—

Dixton Brick and Pointing.....30¢
Dixton Plastering.....25¢
Dixton "Standard Brand" and Garden Trowels.....40¢
Never-Break steel Garden Trowels.....gro. \$7.00
Peace's Plastering.....30¢
Rose Brick and Plastering.....25¢5¢
Woodrugh & McParlin, Plastering.....35¢10¢

Trucks, Warehouse, &c.—

B. & L. Block Co.'s list.....40¢
Daisy Stove Trucks, Improved pattern 7 doz. \$31.00

Tubs, Wash—

No. 1 2 3
Galvanized, per doz. \$5.00 5 50 6.00
Galvanized S. S. & Co., with Wringer Attachment, 7 doz. No. 10, \$7.35
No. 20, \$7.75; No. 30.....\$8.25

Twine—Binder—

Carload lots f.o.b. New York, Philadelphia or Boston.
White Sisal, 500 ft. to lb. per lb. 11½¢
Standard, 500 ft. to lb. per lb. 11¢
Manila, 600 ft. to lb. per lb. 14½¢
Pure Manila, 650 ft. to lb. per lb. 15½¢
Less than carloads add ¼¢ per lb.

Miscellaneous—

Flax Twine— BC B.
No. 9, ¼ and ½-lb. Balls.....23¢ 26¢
No. 12, ¼ and ½-lb. Balls.....19¢ 22¢
No. 15, ¼ and ½-lb. Balls.....16¢ 19¢
No. 21, ¼ and ½-lb. Balls.....16¢ 19¢
No. 36, ¼ and ½-lb. Balls.....15¢ 18¢
Chalk Line, Cotton, ¼-lb. Balls.....15¢@30¢
Cotton Mops, 6, 9, 12 and 15 lb. to doz.....7¢@8¢
Cotton Wrapping, 5 Balls to lb.....9¢16¢
American 2-Ply Hemp, ¼ and ½-lb. Balls.....12¢13¢
American 3-Ply Hemp, 1-lb. Balls.....12¢13¢

India 2-Ply Hemp, ¼ and ½-lb. Balls (Spring Twine).....10¢
India 3-Ply Hemp, 1-lb. Balls.....10¢
India 3-Ply Hemp, 1½-lb. Balls.....9¢
2, 3, 4 and 6-Ply Jute, ½-lb. Balls.....8¢@9¢

Mason Line, Linen, ¼-lb. Balls.....45¢
No. 26½ Mattress, ¼ and ½-lb. Balls.....35¢
Wool.....70¢

Vises—

Solid Box.....40¢10¢@...
Bonney's Saw Vises.....40¢10¢

Parallel—

Athol Machine Co.:
Simpson's Adjustable.....40¢
Standard.....40¢10¢
Amateur.....35¢
Bonney's.....40¢10¢
Fisher & Norris Double Screw.....15¢10¢
Hollands.....40¢@40¢10¢
Lewis Tool Co.....20¢30¢
Massey's Perfect.....15¢20¢
Massey's Clincher.....30¢40¢
Merrill's.....20¢
Miller's Falls.....low list 10¢
Parker's:
Victor.....20¢25¢
Regulars.....20¢25¢
Vulcan.....40¢45¢
Combination Pipe.....55¢60¢
Prentiss.....20¢25¢
Sargent's.....60¢@60¢10¢
Simpson's Adjustable.....40¢
Snedker's X. L.....20¢25¢
Stephens'.....20¢25¢
Toles' Woodworking.....25¢
Van, W. & W. Hdw. Co.....40¢

Saw Filers—

Bonney's No. 1, \$13; No. 3, \$6.50@10¢
Disston's D S Clamp and Guide, 7 d. s \$30.....25¢
Reading.....40¢10¢
Wentworth's Rubber Jaw, Nos. 1, 2 and 3.....30¢7½¢

Miscellaneous—

Signal & Keeler Combination Pipe Vise.....80¢
Parker's Combination Pipe:
87 Series.....60¢
187 Series.....60¢5¢
No. 870.....40¢

Wads—Price Per M.

B. E., 11 up.....60¢
B. E., 9 and 10.....70¢
B. E., 8.....80¢
B. E., 7.....80¢
B. E., 11 up.....\$1.00
P. E., 9 and 10.....1.25
P. E., 8.....1.50
P. E., 7.....1.50
Ely's B. E., 11 and larger.....\$1.70@1.75
Ely's P. E., 12 to 20.....\$3.00@3.55

Wagon Jacks—

See Jacks, Wagon.

Ware, Hollow—

Aluminum—
S. S. & Co. Reduced List.....40¢

Cast Iron, Hollow—

Stove Hollow Ware:
Ground.....60¢@60¢7½¢
Unground.....65¢@65¢10¢

White Enamelled Ware:
Moshin Kettles 75¢10¢@75¢10¢5¢
Boilers and Saucepans.....65¢@65¢5¢
Tinned Boilers and Saucepans.....65¢@65¢5¢

See also Pots, Glue.

Enamelled—

Agate Nick 1 Steel Ware, list July '99, 40¢
Granite Ware, list Jan. 1, '94, revised Jan. 2, '95.....40¢10¢
Second Quality, Agate Nickel Steel.....65¢
Second Quality, Granite.....70¢10¢@70¢10¢10¢

Iron Clad:
Peppered Ware, high list.....70¢
P. Incess Ware, special list.....30¢4¢
Mottled Ware, high list.....75¢
Never Break Enamelled.....50¢5¢@50¢10¢

Tea Kettles—

Galvanized Tea Kettles:
Inch.....6 7 8 9
Each.....50¢ 55¢ 60¢ 70¢

Steel Hollow Ware.

Avery Spiders & Griddles.....65¢@65¢5¢
Avery Kettles.....60¢
Porcelain.....50¢5¢@50¢10¢
Never Break Spiders and Griddles.....65¢@65¢5¢
Never Break Kettles.....60¢@60¢10¢
Solid Steel Spiders & Griddles.....65¢5¢
Solid Steel Kettles.....60¢
Solid Steel Ware, Enamelled.....50¢5¢

Silver Plated Hollow—

William Rogers Mfg. Co.....40¢10¢

Washboards—

Solid Zinc.....7 doz
Crescent, family size, bent frame, \$3.00
Red Star, laundry size, stationary protector.....\$4.25

Double Zinc Surface:

Saginaw Globe, family size, stationary protector.....\$2.65
Wilson, family size, bent frame.....\$2.75

Single Zinc Surface:

Nalad protector, family size, open back perforated.....\$3.40
Saginaw Globe, protector, family size, ventilated back.....\$2.25
Wilson, bent frame, family size, ventilated back.....\$2.25

Bemis & Call's	
Adjustable S. Pipe	35¢
Adjustable S. Pipe	40¢
Bright's Pattern	50¢
Combination Black	40¢
Combination Bright	40¢
Cylinder or Gas Pipe	55¢
Extra Heavy	45¢
Merrick's Pattern	50¢
No. 3 Pipe, Bright	55¢
Rindley Automatic	30¢
Boardman's	33¢
Bull Dog, W. & B.	60¢
Donohue's Engineer	10¢
Darle	50¢
Hercules	70¢
Solid Hand S. & W.	40¢
Stevenson	60¢
Stillson's	55¢

Wrought Goods—
Staples, Hooks, &c., list March 17
 '92.....85@86¢10¢

Yokes, Neck—
Covert Saddlery Works, Trimme 1.60 & 55
Covert Saddlery Works, Neck Yoke
Centers 704

Yokes, Ox, and Ox Bows—
Fort Madison's Farmers & Freighters'..

Zinc-
Sheet.....lb 7 $\frac{1}{2}$ c@8c

rices.

Linseed, raw Calcutta seed....	58
Lard, Prime.....	53

Lard, Extra No. 1.....	45	@47
Lard, No. 1.....	43	@48
Cotton-seed, Crude.....	31	@34 1/2

Linseed, raw Calcutta seed....	68
Lard, Prime.....	25

Lard, Prime.....	61	@ 63
No. 1.....	45	@ 45
Lard, No. 1.....	45	@ 45
Cotton-seed, Crude.....	31	@ 34 1/2
Cotton-seed, Sumner Yellow, prime.....	37 1/2	@ 38
Cotton-seed Summer Yellow, off grades.....	22	@ 22
Sperm, Crude.....	22	@ 22
Sperm.....	22	@ 22
Sperm, Bleached Spring.....	22	@ 22
Sperm, Natural Winter.....	25 1/2	@ 25 1/2
Sperm, Bleached Winter.....	26	@ 26
Whale, Crude.....	22	@ 22
Whale, Natural Winter.....	27	@ 27
Whale, Bleached Winter.....	29	@ 29
Menhaden, Crude, Sound.....	37	@ 37
Menhaden, Bleached Winter.....	35	@ 35
Menhaden, Extra Bleached.....	37	@ 37
Tallow, prime.....	54	@ 55
Cocoanut, Ceylon.....	5 1/2	@ 6
Cocoanut, Cochlin.....	6 1/2	@ 6 1/2
Cod, Domestic.....	33	@ 35
Cod, Newfoundland.....	36	@ 35
Red Fish.....	38	@ 40
Red Saponified.....	5 1/2	@ 5 1/2
Bank.....	2	@ 2
Straits.....	2	@ 2
Olive, Italian, bbls.....	60	@ 61

Neatsfoot, prime.....
Palm, prime, Lagos...

Mineral Oils.

Black, 30 gravity, 25@30 cold test.....	9 gal. 11	@ 11 1/2
Black, 30 gravity, 15 cold test, 19.....	19	@ 12 1/2
Black, summer.....	10	@ 11
Cylinder, light filtered.....	15	@ 17 1/2
Cylinder, dark filtered.....	13	@ 18
Paraffine, 803-907 gravity.....	15	@ 15 1/2
Paraffine, 883 gravity.....	14	@ 14 1/2
Paraffine, 883 gravity.....	13 1/2	@ 13 1/2
Paraffine, red, No. 1.....	15	@ 18 1/2

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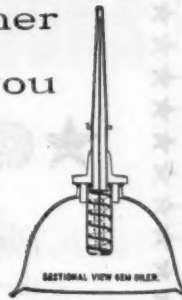
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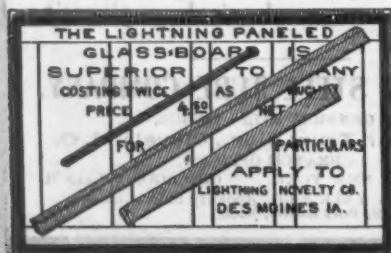
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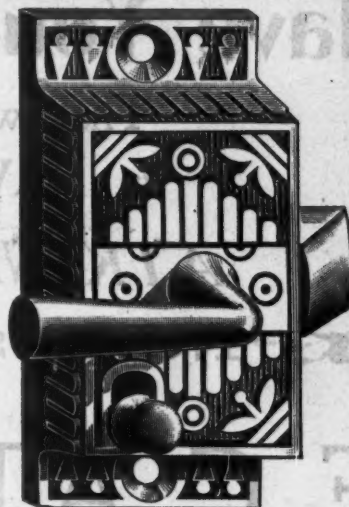
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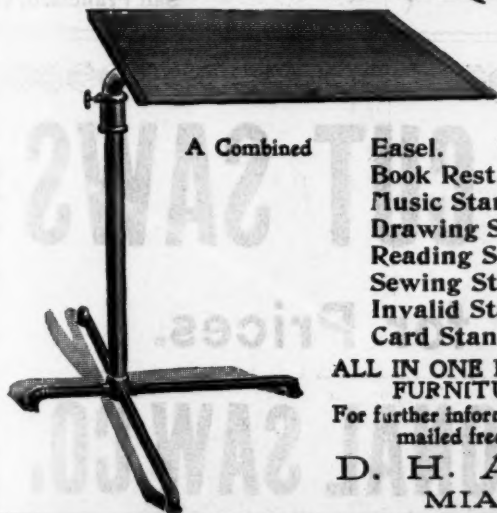
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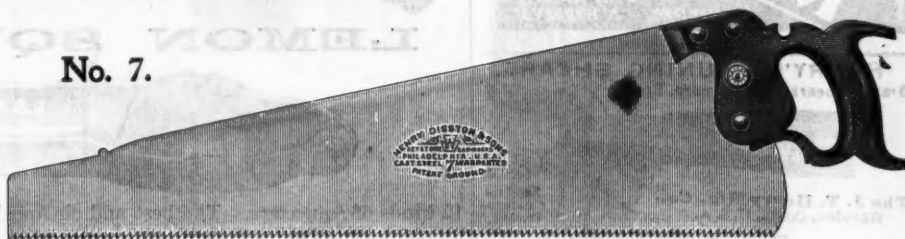
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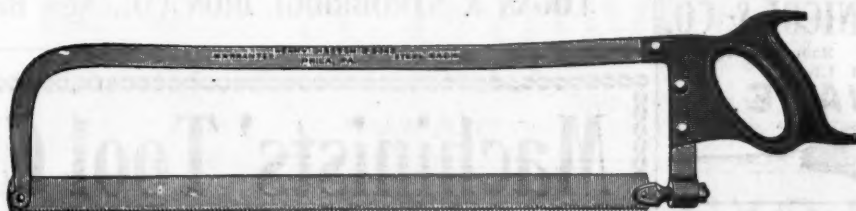
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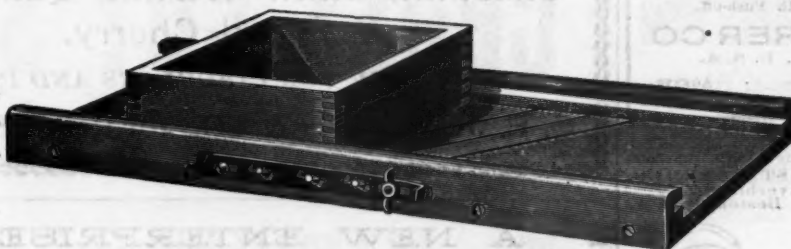
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